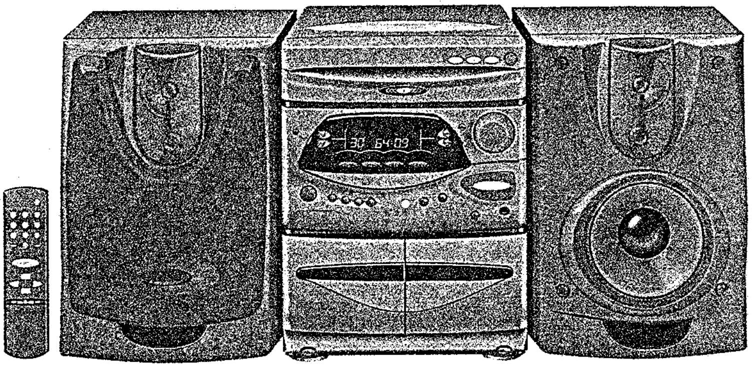
Mini System FW372C/21P/22B/22P/25P/30P/34P/37P

Service
Service
Service



Service Manual

Introduction of FW372C/21P/22B/22P/25P/30P/34P/37P
For Service documentation please refer to Service Manual
FW372C - 4822 725 25193 5088

1. FW372C/22B & /22P refers to FW372C/22
2. FW372C/25P refers to FW372C/25
3. FW372C/37P refers to FW372C/37 except IFU is 4822 736 15541
4. FW372C/21P, /30P & /34P refers to FW372C/21, /30 & /34 respectively, with the undermentioned difference:

Pos No.	Service code	Description
208	4822 410 11031	Button set PW/Source
210	4822 410 11006	Button set DSC1
211	4822 410 11007	Button set DSC2
266	4822 410 10966	Knob Volume Rotary

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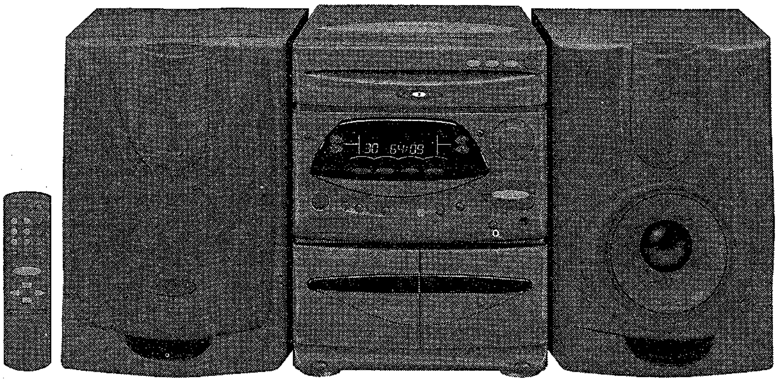
PCS 96 594

PHILIPS

Mini System FW372C/21/21M/22/25/30/34/37

Service
Service
Service



Service Manual

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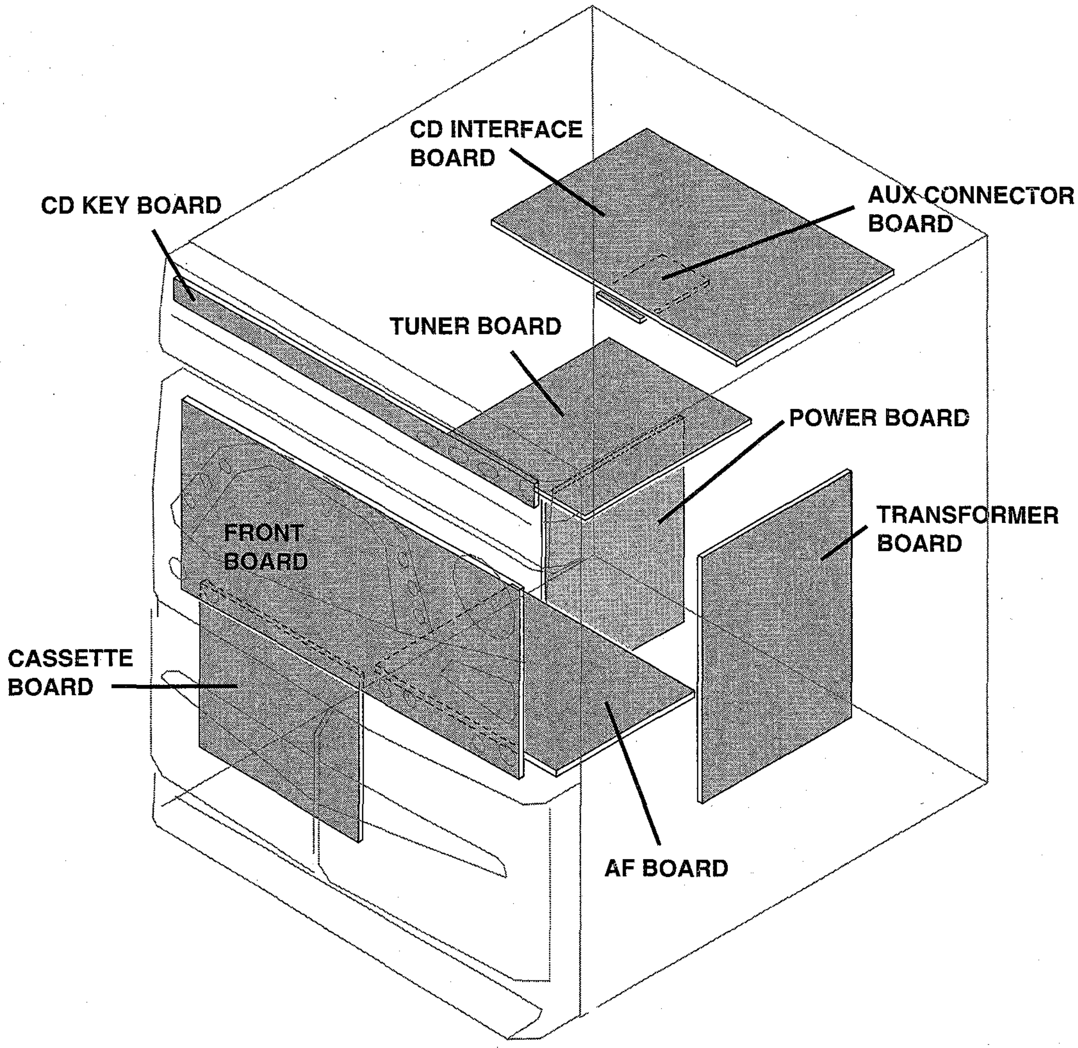
PCS 89 414

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARD


CD INTERFACE BOARD
CD KEY BOARD
AUX CONNECTOR BOARD
TUNER BOARD
POWER BOARD
TRANSFORMER BOARD
FRONT BOARD
CASSETTE BOARD
AF BOARD

General:

Mains voltage	120V -/37 120 ~ 230V -/21/21M 230V -/25/34 220~230V -/22 240V -/30
Mains frequency	50 ~ 60Hz
Power consumption	37W max. @1/8 Prated

Amplifier:

Output power	2 x 18W at 3Ω
Headphone	3.5mm stereo jack
Frequency response	40Hz - 20kHz (-3dB) Limit
Input sensitivity	
Aux/Line	400mV ±2dB
Microphone	2.5mV ±2dB @1kHz

Equalizer:

100 Hz	-3.5 ~ 5dB
1 kHz	± 3dB
12kHz	-0.5 ~ 5dB

Tuner:

FM

Tuning range	87.5MHz - 108MHz
Grid	100kHz 50kHz -/37
IF	10.7MHz
Aerial input	300Ω Click fit for /37
Sensitivity Mono 26dB S/N	< 7µV
Distortion at RF=1mV, Freq. dev.=75kHz	3% - typ. 2% {1% -typ. 2%}
IF rejection	> 60dB
Image rejection	> 25dB
-3dB Limiting Point	< 23.5dBf {22dBf}

MW

Tuning range	530kHz - 1710kHz -/37 {531 - 1602kHz} 531kHz - 1062kHz
Grid	10kHz -/37 9kHz
IF	450kHz ±1kHz
Sensitivity at 26dB S/N	< 4.0mV/M
Distortion at RF=50mV, m=80%)	< 5% - typ. 3% {3% - typ. 7%}
IF rejection	> 45dB
Image rejection	> 28dB

LW

Tuning range	153kHz - 279kHz
Sensitivity at 26dB S/N	< 6.0mV/M
IF rejection	> 26dB
Image rejection	> 28dB {35dB}

CD Unit:

Frequency response within	20Hz - 20kHz at ±3dB
Signal/Noise ratio	> 80dB (A-weighted)
Distortion at 1kHz	< 0.5%
Channel unbalance	< 1dB
Channel crosstalk at 1kHz	> 50dB
De-emphasis	0 or 15/50 µS

Recorder Part:

Tape speed	4.76 cm/sec ± 2%
Wow and flutter	< 0.4%
Fast-wind time C60	130 sec
Bias system AM/FM	AC 75kHz ± 5kHz
Distortion at 250nWb/m	< 5%
Channel difference at PB	< 3dB
Channel difference overall	< 3dB
Channel Separation	> 24dB at 1kHz
Track Separation	> 55dB at 1kHz
ALC attack time	< 10ms
ALC recovery time	> 60s
Frequency Response	80Hz - 12.5kHz within - 8dB
Signal to noise ratio[1]	> 44dB
Signal to Hiss ratio[2]	> 48dB
Erase attenuation[3]	> 55dB at 1kHz

[1] at 250 nW/m FF-weighted (22Hz-22KHz band pass filter)

[2] at 250 nW/m A-weighted

[3] use a 1kHz passfilter to minimize the wide band noise component

Note : {....} for version 22 only

General:

Mains voltage : 120V -/37
120 ~ 230V -/21/21M
230V -/25/34
220~230V -/22
240V -/30
Mains frequency : 50 ~ 60Hz
Power consumption : 37W max. @1/8 Prated

Amplifier:

Output power : 2 x 18W at 3Ω
Headphone : 3.5mm stereo jack
Frequency response : 40Hz - 20kHz (-3dB) Limit

Input sensitivity
Aux/Line : 400mV ±2dB
Microphone : 2.5mV ±2dB @1kHz

Equalizer:

100 Hz : -3.5 ~ 5dB
1 kHz : ± 3dB
12kHz : -0.5 ~ 5dB

Tuner:

FM
Tuning range : 87.5MHz - 108MHz
Grid : 100kHz
50kHz -/37
IF : 10.7MHz
Aerial input : 300Ω Click fit for /37
Sensitivity Mono 26dB S/N : < 7µV
Distortion at RF=1mV,
Freq. dev.=75kHz : 3% - typ. 2% {1% -typ. 2%}

IF rejection : > 60dB
Image rejection : > 25dB
-3dB Limiting Point : < 23.5dBf {22dBf}

MW
Tuning range : 530kHz - 1710kHz -/37
{531 - 1602kHz}
531kHz - 1062kHz
Grid : 10kHz -/37
9kHz
IF : 450kHz ±1kHz
Sensitivity at 26dB S/N : < 4.0mV/M
Distortion at RF=50mV,
m=80%) : < 5% - typ. 3% {3% - typ. 7%}

IF rejection : > 45dB
Image rejection : > 28dB

LW
Tuning range : 153kHz - 279kHz
Sensitivity at 26dB S/N : < 6.0mV/M
IF rejection : > 26dB
Image rejection : > 28dB {35dB}

CD Unit:

Frequency response within : 20Hz - 20kHz at ±3dB
Signal/Noise ratio : > 80dB (A-weighted)
Distortion at 1kHz : < 0.5%
Channel unbalance : < 1dB
Channel crosstalk at 1kHz : > 50dB
De-emphasis : 0 or 15/50 µS

Recorder Part:

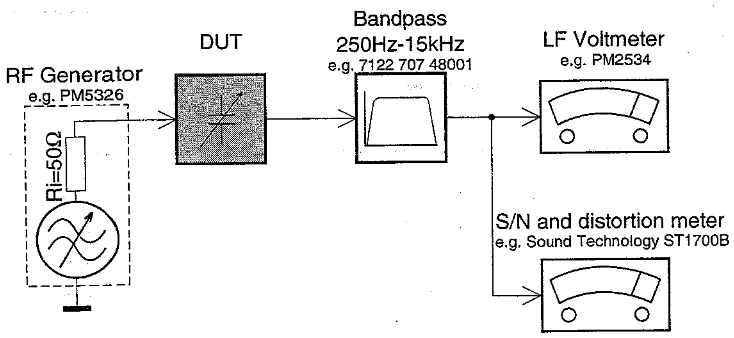
Tape speed : 4.76 cm/sec ± 2%
Wow and flutter : < 0.4%
Fast-wind time C60 : 130 sec
Bias system AM/FM : AC 75kHz ± 5kHz
Distortion at 250nWb/m : < 5%
Channel difference at PB : < 3dB
Channel difference overall : < 3dB
Channel Separation : > 24dB at 1kHz
Track Separation : > 55dB at 1kHz
ALC attack time : < 10ms
ALC recovery time : > 60s
Frequency Response : 80Hz - 12.5kHz within - 8dB
Signal to noise ratio[1] : > 44dB
Signal to Hiss ratio[2] : > 48dB
Erase attenuation[3] : > 55dB at 1kHz

[1] at 250 nW/m FF-weighted (22Hz-22KHz band pass filter)
[2] at 250 nW/m A-weighted
[3] use a 1kHz passfilter to minimize the wide band noise component

Note : {....} for version 22 only

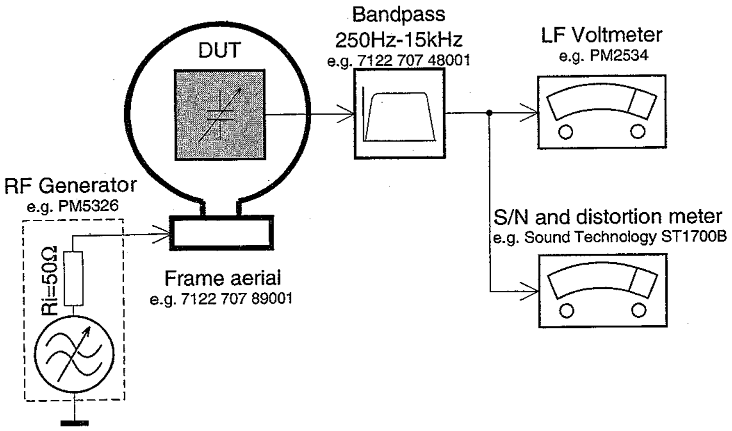
MEASUREMENT SETUP

Tuner FM


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
S/N and distortion meter
e.g. Sound Technology ST1700B

Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

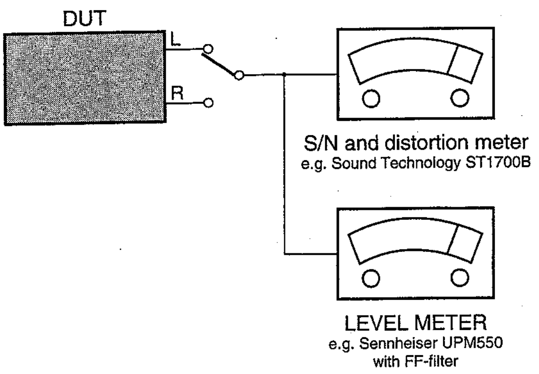
Tuner AM (MW,LW)


Bandpass
250Hz-15kHz
e.g. 7122 707 48001
DUT
LF Voltmeter
e.g. PM2534
RF Generator
e.g. PM5326
Ri=50Ω
Frame aerial
e.g. 7122 707 89001
S/N and distortion meter
e.g. Sound Technology ST1700B

To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

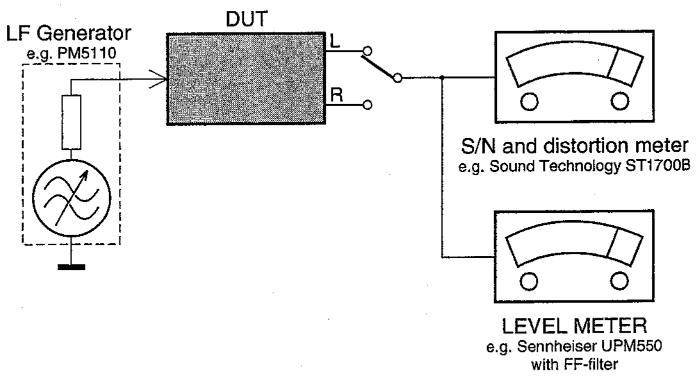
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)


DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

RECORDER

Use Universal Test Cassette **CrO$_2$** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071


LF Generator
e.g. PM5110
DUT
L
R
S/N and distortion meter
e.g. Sound Technology ST1700B
LEVEL METER
e.g. Sennheiser UPM550
with FF-filter

RC5 SYSTEM/COMMAND CODES

Remote control key	System Code	Command Code
Standby	17,18,20,21	12
Standby pressed longer than 1 sec	00,04,05	12
Tuner	17	63
Tuning up	17	30
Tuning down	17	31
Preset up	17	32
Preset down	17	33
Preset 10 key *	17	00-09
CD	20	63
CD Play	20	53
CD Stop	20	54
CD Pause	20	48
Preset 10 key *	20	00-09
CD Next	20	32
CD Previous	20	33
CD Search forward	20	52
CD Search backward	20	50
CD Disc Up	20	30
CD Disc Down	20	31
CD Shuffle	20	28
Tape	18	63
Tape1	18	44
Tape2	18	46
Side	18	47
Tape Play	18	53
Tape Stop	18	54
Tape Wind	18	52
Tape Rewind	18	50
Tape Pause	18	48
Tape Previous	18	33
Tape Next	18	32
Incredible Sound	16	64
DBB	16	70
DSC	16	79
Volume up	16	16
Volume down	16	17
Vocal Fader 1)	16	67
Key control up 1)	16	68
Key control down 1)	16	69
Mulitmedia	04	63
AUX	21	63

1) For set with KARAOKE only

* Only for set with the key available

Only applicable when TV/VCR function is available.

Remote control key	System Code	Command Code
TV/VCR	00	63
Channel down	00	32
Channel up	00	33
Play	00	53
Stop	00	54
Volume Down	00	17
Volume Up	00	16
Pause	05	48

Note: If key not available on the remote control, the code does not apply.

General Information

- The typeplate is located at the rear of the set.
- Recording is permissible if copyright or other rights of third parties are not infringed.

1 All unnecessary packaging material has been omitted. We have done our utmost to make the packaging easy to separate into three mono-materials:
  - cardboard (box)
  - expandable polystyrene (buffer)
  - polyethylene (bags, protective foam sheet).

  Please observe the local regulations regarding the disposal of these packaging materials.

2 Your set consists of materials which can be recycled and reused if disassembled by a specialized company. Please follow local regulations on recycling your old set.

3 Do not dispose dead batteries with your household waste. Dispose batteries according to local regulations.

4 Note: Switching off the standby mode overnight will save energy.

Safety Information

- Before operating the system, check that the operating voltage indicated on the typeplate (or the voltage indication beside the voltage selector) of your system is identical with the voltage of your local power supply. If not, please consult your dealer. The type plate is located at the rear of your system.
- When the system is switched on, do not move it around.
- Place the system on a solid base (e.g. a cabinet).
- Place the system in a location with adequate ventilation to prevent internal heat build-up in your system.
- Do not expose the system to excessive moisture, rain, sand or heat sources.
- Under no circumstances should you repair the unit yourself, as this will invalidate the warranty!
- If the system is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens of the CD unit inside the system. Should this occur, the CD player will not operate normally. Leave the power on for about one hour with no disc in the unit until normal playback is possible.
- Electrostatic discharge may cause unexpected problems. See whether these problems disappear if you unplug the AC power cord and plug it in again after a few seconds.
- **To disconnect the system from the power supply completely, remove the AC power plug from the wall socket.**

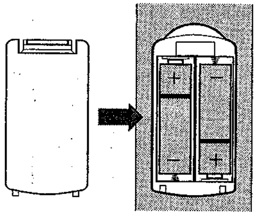
Speakers

Accessories (Supplied)

- Remote control transmitter
- Batteries (2 x AAA size) for remote control transmitter
- AM loop antenna
- FM antenna wire
- AC power cord

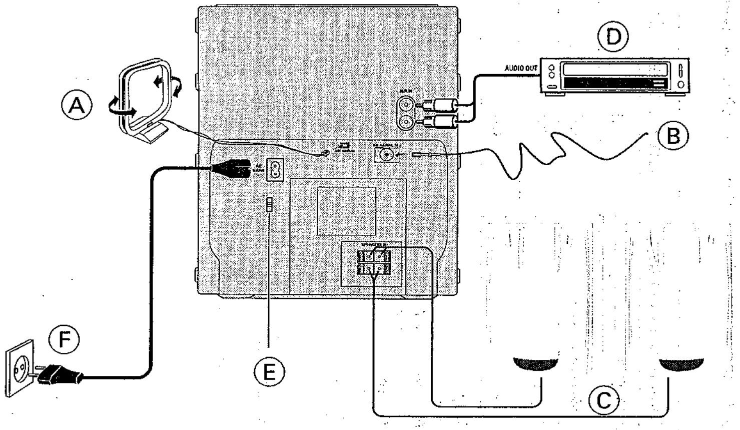
Inserting the batteries into the Remote Control

- Insert the batteries (Type R03 or AAA) into the remote control transmitter as shown in the battery compartment.



- To avoid damage from possible battery leakage, remove dead batteries or batteries that will not be used for a long time. For replacement use type R03 or AAA batteries.

Rear Connection



Ⓐ AM Antenna Connection

Connect the supplied loop antenna to the AM AERIAL terminal. Adjust the position of the AM loop antenna for the best reception.

Ⓑ FM Wire Antenna Connection

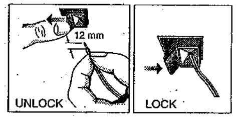
Connect the supplied FM wire antenna to the FM 75 Ω terminal. Adjust the position of the FM antenna for the best reception.

Outdoor Antenna

For better FM stereo reception connect an outdoor FM antenna to the FM AERIAL 75 Ω terminal using a 75 Ω coaxial wire.

Ⓒ Speaker Connections

- Connect the right speaker to terminal **R**, with the red wire to + and the black wire to —.
- Connect the left speaker to terminal **L**, with the red wire to + and the black wire to —.
- Clip the stripped portion of the speaker wire as shown.



Ⓓ Connecting other equipment to your system

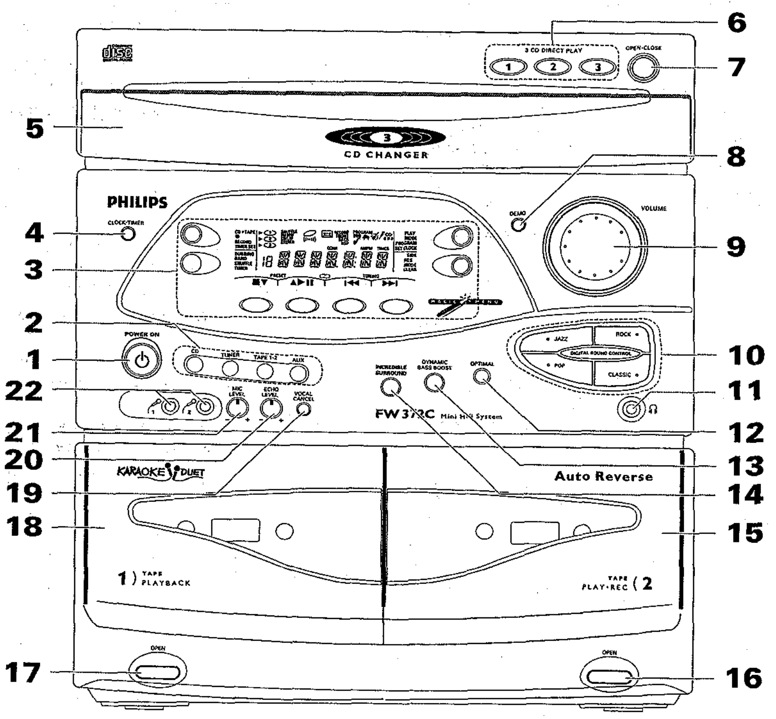
You can connect TV, Laser Disc or VCR audio left and right outputs to the AUX terminal at the rear of the system.

Ⓔ Adjusting the Operating Voltage

Before connecting the AC power cord to a wall outlet, make sure that the voltage selector at the rear of the system is set to the local power line voltage. If not, reset the selector before connecting to the wall outlet.

Ⓕ AC Power Supply

After all other connections have been made, connect the AC power socket to the set and the AC power plug to the wall outlet.


1
2
3
4
5
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7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
3 CD DIRECT PLAY
OPEN-CLOSE
CD CHANGER
PHILIPS
CLOCK•TIMER
DEMO
VOLUME
POWER ON
CD
TUNER
TAPE 1-2
AUX
MIC LEVEL
ECHO LEVEL
VOCAL CANCEL
INCREDIBLE SURROUND
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
ROCK
POP
CLASSIC
DIGITAL SOUND CONTROL
KARAOKE DUET
Auto Reverse
1 TAPE PLAYBACK
TAPE PLAY-REC 2
OPEN
OPEN

1 **POWER ON**
– to switch the set on or to standby mode.

2 **SOURCE SELECTION**
– to select the following :
TUNER : to switch to Radio mode.
CD : to switch to CD mode.
TAPE 1-2: to switch to Tape 1 or 2 mode.
AUX : to switch to AUX mode (for external sources, e.g. TV, Laser Disc or VCR sound).

3 **MAGIC MENU USER INTERFACE AND DISPLAY**
– to select the control functions.

4 **CLOCK•TIMER**
– to set clock or timer.

5 **CD CAROUSEL TRAY**

6 **3 CD DIRECT PLAY**
– to select play for each CD tray.

7 **OPEN • CLOSE**
– to open or close the CD carousel tray.

8 **DEMO**
– to display the various features offered by the system.

9 **VOLUME**
– to adjust the volume level.

10 **DIGITAL SOUND CONTROL (DSC)**
– to select the desired sound effect : JAZZ, ROCK, POP or CLASSIC.

11 **HEADPHONES 🎧**
– to connect headphones (ø 3.5mm) jack.

12 **OPTIMAL**
– to select the sound setting that is tuned to the acoustics of the supplied speakers.

13 **DYNAMIC BASS BOOST (DBB)**
– to switch on bass boost to enhance bass response or to switch off bass boost.

14 **INCREDIBLE SURROUND**
– to switch on or off the surround sound effect.

15 **TAPE DECK 2**

16 **OPEN**
– to open TAPE 2 cassette compartment.

17 **OPEN**
– to open TAPE 1 cassette compartment.

18 **TAPE DECK 1**

19 **VOCAL CANCEL**
– to fade out the vocal of the original song

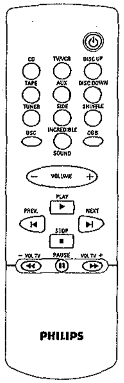
20 **ECHO LEVEL**
– to adjust the echo level for karaoke or microphone recording.

21 **MIC LEVEL**
– to adjust the mixing level for karaoke or microphone recording.

22 **MIC 1 and 2**
– to connect microphones (ø 3.5mm) jack.

Remote Control Functions

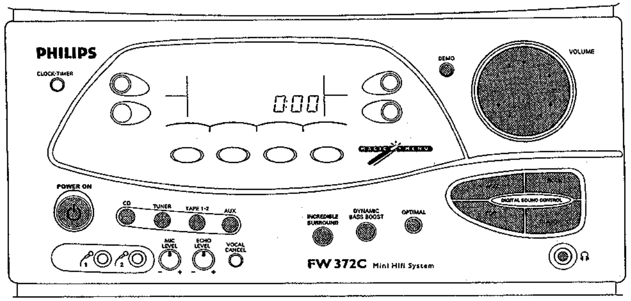
– First select the source you wish to control by pressing one of the source select keys on the remote control (e.g. CD, TV/VCR , TUNER, AUX, TAPE 1 or TAPE 2).
– Then select the desired function.


CD
TV/VCR
DISC UP
TAPE
AUX
DISC DOWN
TUNER
SIDE
SHUFFLE
DSC
INCREDIBLE
DBB
SOUND
VOLUME
PLAY
PREV.
NEXT
STOP
VOL TV
PAUSE
PHILIPS

Note :
– Whenever any of the RC button is pressed, the source icon on the set display will flicker. This indicates the remote control signal is received by the set.

– For TV/VCR operation, the TV or VCR must use the RC-5 code remote control system.

⏻	to switch the unit to standby mode.
CD	to select CD mode.
TV/VCR	to select TV/VCR mode.
DISC UP	to select next disc.
TUNER	to select TUNER mode.
AUX	to select external mode.
SHUFFLE	to play CD tracks at random.
TAPE 1	to select TAPE 1 mode.
TAPE 2	to select TAPE 2 mode.
SIDE	to select the direction of play for TAPE 2.
DSC	to select digital sound control: JAZZ, CLASSIC, ROCK or POP.
INCREDIBLE SURROUND	to switch on or off the surround sound effect.
DBB	to switch on and off dynamic bass boost.
VOLUME +/−	to adjust the volume.
PLAY ▶	to start play in CD or TAPE mode.
STOP ■	to stop play in CD or TAPE mode.
⏮ PREV. / NEXT ⏭	
for TUNER	to select a lower/higher tuner preset station.
for CD	to select previous/next CD track.
for TV/VCR	to select previous/next channel.
PAUSE II	to interrupt or resume play in CD mode.
◀◀ / ▶▶	
for TUNER	to select a lower/higher frequency.
for CD	to search a particular passage.
for TAPE	to fast rewind/forward the tape.
TV VOLUME +/−	to adjust the TV (RC 5 code) volume.


PHILIPS
CLOCK-TIMER
DEMO
VOLUME
POWER ON
CD
TUNER
TAPE 1-2
AUX
MIC LEVEL
ECHO LEVEL
VOCAL CANCEL
INCREDIBLE SURROUND
DYNAMIC BASS BOOST
OPTIMAL
DIGITAL SOUND CONTROL
FW 372C Mini Hifi System

Important :
Before you begin operating the system, complete the preparation procedures. The set is in the standby mode when the AC power plug is connected to the wall socket and "00:00" flashes on the display.

Switching the system ON

- Press **POWER ON**, **CD**, **TUNER**, **TAPE 1-2** or **AUX** (or **CD**, **TUNER**, **TAPE 1** or **TAPE 2** on the remote control).

Switching the system to standby mode

- Press **POWER ON** again (or ⏻ on the remote control).

Selecting the Sound Source

- Press the respective source button: **CD**, **TUNER**, **TAPE 1-2** or **AUX** on the set or the remote control).
  → The display indicates the selected sound source.

Note :
For AUX source, ensure that you had connected the audio left and right outputs of the external equipment (TV, VCR or Laser Disc player) to the AUX IN sockets.

Volume Adjustment

Rotate **VOLUME** right or left (or press **VOLUME** + or − on the remote control) to increase or decrease the sound level.

For Personal Listening
Connect the headphones jack to the 🎧 socket (3.5 mm) at the front of the set. The speakers will be muted.

Digital Sound Control (DSC)

The DSC feature creates a realistic atmosphere for the style of music you select using the latest digital sound technology.

- To enjoy a special sound effect, press **JAZZ** ( ), **CLASSIC** ( ), **ROCK** ( ) or **POP** ( ).
- You can also press **DSC** on the remote control to select the respective sound setting.

Optimal Sound

- Press **OPTIMAL** to hear the sound setting that is tuned to the acoustics of the supplied speakers.

Dynamic Bass Boost (DBB)

- Press **DBB** to enhance the bass response.
  → The DBB flag lights up.

Incredible Surround

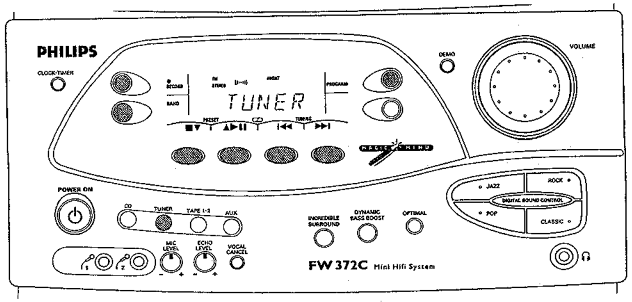
- In additional to all other sound settings, you can switch on or off the incredible surround sound feature by pressing **INCREDIBLE SURROUND**.
  → This creates a phenomenal surround sound effect even if the speakers are positioned close to the system. The sound becomes "incredibly" spatial.
  → The INCREDIBLE SURROUND button lights up.

INCREDIBLE SURROUND

Demo mode

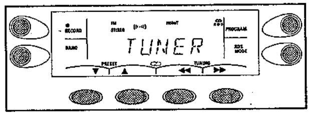
The system has a demonstration mode that shows the various features offered by the system.

- Press **DEMO** to switch on the demonstration.
  → The display will show "WELCOME TO THE AUDIO WORLD", then a demonstration of the the various features will follow.
- Press **DEMO** again or **POWER ON** (or ⏻ on remote control) to stop the demonstration mode.


PHILIPS
CLOCK-TIMER
TUNER
DEMO
VOLUME
POWER ON
CD
TUNER
TAPE 1-2
AUX
MIC LEVEL
ECHO LEVEL
VOCAL CANCEL
INCREDIBLE SURROUND
DYNAMIC BASS BOOST
OPTIMAL
JAZZ
ROCK
DIGITAL SOUND CONTROL
POP
CLASSIC
FW 372C Mini Hifi System

Tuning to radio stations

1 Press **TUNER** on the unit or on the remote control.
  → First TUNER appears on the display and after a few seconds it will show the current frequency or the station name if available.
  The available display button functions light up:


RECORD
BAND
FM STEREO
FRONT
CD RDS
PROGRAM
RDS MODE
TUNER
PRESET
TUNING

2 Press BAND to select the desired waveband : FM or MW.

3 Press TUNING ◀◀ or ▶▶ for more than one second.
  → The display will show 'SEARCH' until a station with sufficient signal strength is found.

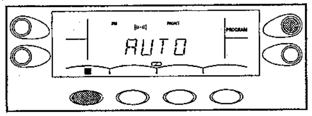
- Repeat this procedure until the desired station is reached.
- To tune to a weak station, briefly press TUNING ◀◀ or ▶▶ until the display shows the right frequency and/or when the best reception has been obtained.

Note:
If you briefly press TUNING ◀◀ or ▶▶ (◀◀ or ▶▶ on the remote control), the frequency changes step by step.

Storing Preset Stations

You can store up to 20 stations in the memory. When a preset station is selected, the preset number appears next to the frequency on the display.

Automatic programming

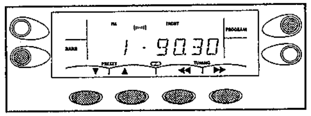

FM
FRONT
PROGRAM
AUTO

1 Press **TUNER** on the unit or on the remote control.
2 Press PROGRAM for more than 1 second.
  → PROGRAM flashes and 'AUTO' is displayed.
  → Every available station will be stored automatically. The frequency and preset number will be displayed briefly.
  → It will stop searching when all the available stations are stored or the memory for 20 preset stations is used.
  → The set will remain tuned to the last stored preset number.

- You can cancel the automatic programming by pressing PROGRAM or ■.

Note:
If you want to maintain some old preset numbers, for example preset number 1 - 9, select preset 10 before starting automatic programming: now only the preset numbers 10 to 20 will be programmed.

Manual programming

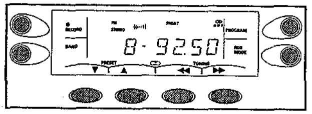

FM
FRONT
PROGRAM
BAND
1 · 90.30
PRESET
TUNING

1 Press **TUNER** on the unit or on the remote control.
2 Press PROGRAM for less than 1 second.
  → PROGRAM flashes on the display.
3 Press BAND to select the desired waveband.
4 Press TUNING ◀◀ or ▶▶ to tune to the desired frequency.
5 Press PRESET ▼ or ▲ to select a preset number.
6 Press PROGRAM again.
  → PROGRAM stop flashing, and the station is stored.

- Repeat the above procedure to store other preset stations.

Tuner

Tuning to Preset Stations



- Press PRESET ▼ or ▲ (or **PREV** ⏮ or **NEXT** ⏭ on the remote control) to select the desired preset number.
  → The preset number, frequency and waveband appear on the display.

● Record Tape

1 As soon as you press ● RECORD, the current sound will be recorded on TAPE 2, provided a tape suitable for recording is loaded.

2 To stop recording, press ■ (or STOP ■ on the remote control).

Changing the FM/MW tuning grid

(for specific versions only)

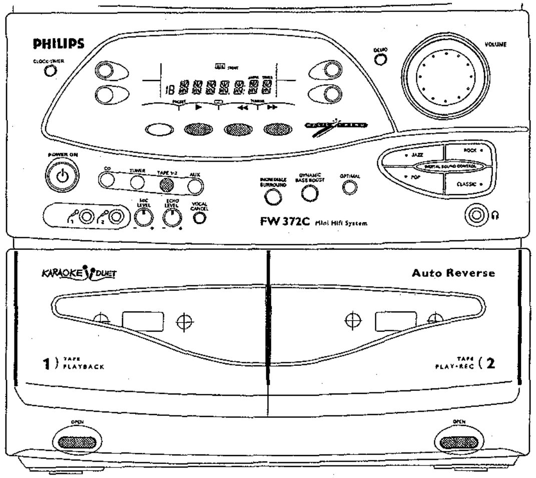
For FM Band : change from 50kHz to 100kHz or vice versa
For MW Band : change from 9kHz to 10kHz or vice versa

Changing of tuning grid will erase all previously stored preset stations.

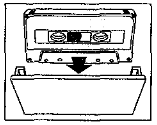
While in TUNER mode, press the **TUNER** button for ***more than 5 seconds.*** Display will shows "GRID 9" or "GRID 10".

Note:
GRID 9 indicates that the tuning grid is in step of 50 kHz in FM band or 9 kHz in MW band. GRID 10 indicates that the tuning grid is in step of 100 kHz in FM band or 10 kHz in MW band.

Cassette Deck



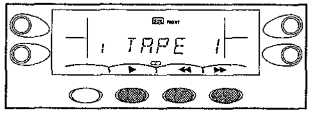
Loading a cassette



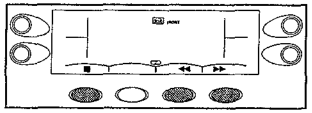
- Press **OPEN**.
- The cassette compartment door opens.
- Load the cassette with the open side downward and the full spool to the left.
  – The deck automatically selects the tape type (NORMAL or CHROME (CrO_2).
- Close the cassette compartment door.

Tape Playback

1 Press **TAPE 1-2** (or **TAPE 1** or **TAPE 2** on the remote control) to select either TAPE 1 or TAPE 2.



2 Load the cassette into a **CASSETTE DECK.**
3 Press PLAY ▶ (or **PLAY** ▶ on the remote control) to start playback.



3a (For Tape 2 only.)
Press SIDE (or **SIDE** on the remote control) to change the direction of the play mode.
→ The FRONT or BACK flag appears in the display, depending on the side selected.

3b (For Tape 2 only.)
Press PLAY MODE to select the different type of play mode (see continuous playback).

4 Press STOP ■ (or **STOP** ■ on the remote control) to end playback.

Note :
When the tape has stopped playing, the set will switch to the standby mode automatically after 15 minutes if no button is pressed.

Continuous Playback (only on TAPE 2)

The PLAY MODE enables you to select the different play modes.

⇌ : recording or playback on one side of the cassette in the normal or reverse direction. The tape stops at the end of one side.
⊐ : recording or playback on both sides of the cassette; first in one direction and then in the reverse direction. The tape then stops.
⊂⊃ : continuous playback on both sides of the cassette up to a maximum of 5 times per side unless you press STOP ■.

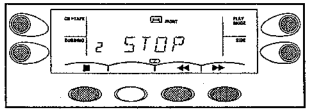
Cassette Deck

Fast Forward/Rewinding

1 You can rewind or fast forward the tape by pressing ◀◀ or ▶▶, (◀◀ or ▶▶ on the remote control) respectively.
2 Press STOP ■ (or **STOP** ■ on the remote control) to stop fast forwarding or rewinding.

Note :
It is possible to fast forward or rewind a cassette when the set is in another source mode (e.g. TUNER, CD or AUX mode).

Recording from other sources (TAPE DECK 2)



1 Press **TAPE 1-2** to select **TAPE 2** .
2 Load a blank cassette into **TAPE DECK 2**.
3 Press SIDE to change to the desired direction of the play mode.
   → The FRONT or BACK flag appears in the display, depending on the side selected.
4 Press PLAY MODE to select the play mode (⥮ or ⊃).
5 Press **CD**, **TUNER**, **TAPE 1-2** or **AUX**.
6 Press ● RECORD to start recording.
   → The RECORD flag starts flashing.
7 Press STOP ■ to stop recording.

Note :
1. Only ⥮ or ⊃ mode is available during recording.
2. For CD recording see CD Synchro-start recording under Compact Disc section.

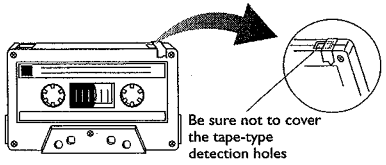
Dubbing cassettes (from DECK 1 to DECK 2)

1 Load the pre-recorded cassette into **TAPE DECK 1** and a blank cassette into **TAPE DECK 2**.
   → Make sure that both cassettes have their full spools to the left.
2 Press SIDE to select the FRONT side of the tape in **TAPE DECK 2**.
3 Press DUBBING and then press ◀◀ or ▶▶ for respective dubbing speed mode.
   → NORMAL (normal speed) or FAST (high speed) appears on the display.
   → HSD appears on the display for high speed dubbing.
4 Press DUBBING again to start recording.
   → RECORD appears on the display.
5 Press STOP ■ to stop dubbing.

Notes :
- At the end of side A, flip the cassettes to side B and repeat the procedure.
- Dubbing of cassettes is only possible in the TAPE mode. To ensure good dubbing, use tapes of the same length.
- During high speed dubbing in Tape mode, the sound is reduced to a low volume.
- You can listen to other sound source while dubbing.

General Information

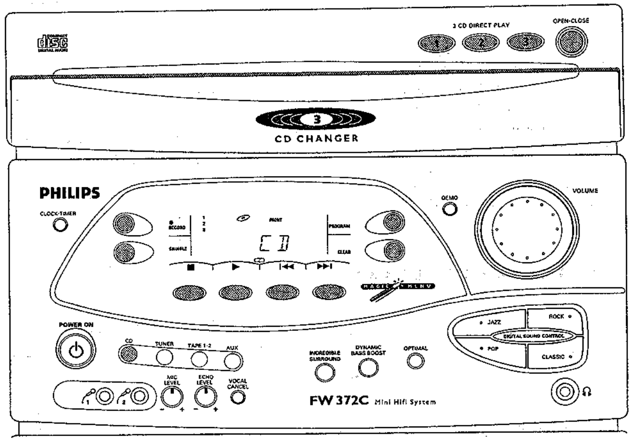
- For recording, use only a cassette of IEC type I (normal cassette) or IEC type II (Chrome). The respective cassette type is selected automatically.
- The tape in the cassette is secured at both ends with a leader tape. At the beginning and end of a cassette, nothing will be recorded for six to seven seconds.
- The recording level is set automatically, regardless of the position of VOLUME.
- Check and tighten slack tape with a pencil before use. Slack tape may get jammed or may burst in the mechanism.
- To prevent accidental recording, break out the tab on the left shoulder of the cassette side you want to protect. To re-record the cassette, cover each hole with cellophane tape. Do not cover the Chrome tape detection hole when covering the tab opening.



Be sure not to cover the tape-type detection holes

- C-120 tape is extremely thin and may be easily deformed or damaged. It is not recommended for use in this unit.
- Store the cassettes at room temperature and do not put them too close to a magnetic field (for example, transformers, TVs or speakers).

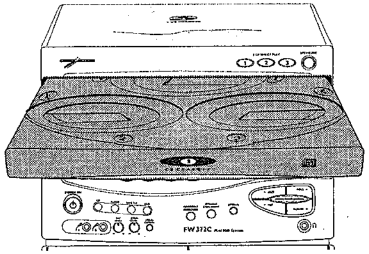
Compact Disc



Warning!
1) This set is designed for conventional CDs. Do not use any accessories like disc stabilizer rings or CD treatment sheets, etc, which may damage the CD mechanism.
2) Do not load more than one disc into each tray.
3) When the CD changer is loaded with CD(s), do not turn over or shake the unit as this may jam the changer mechanism.

You can load up to three discs in the CD changer for continuous play without interruption. In addition to the conventional 12-cm disc, 8-cm discs can also be used without an adaptor .

Loading the CD Changer



1 Press **CD** to select CD.
2 Press **OPEN•CLOSE**.
   → The CD compartment slides out.
3 Load a disc with the ***printed side up*** in the right tray.
- You can load another disc in the left tray.
- To load the third disc, press the corresponding number of the empty tray.
   → The CD changer carousel will rotate until the empty tray is at the right hand side and is ready for loading.
   → Playback will always start with the outer right disc tray.

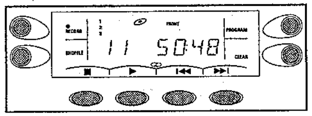
4 Press **OPEN•CLOSE** to close the CD compartment.
   → The total number of tracks and playing time of the last selected disc appear on the display.

The following display indications will help you to know whether the disc trays are empty or loaded.

1 – indicates the disc tray is empty.
② – indicates the disc tray is loaded with a disc.
▶③ – indicates the current or selected disc tray is ready for playing.

Playing a Disc

1 Press ▶ (or **PLAY** ▶ on the remote control) to start playback.
   → The disc tray, track number and elapsed playing time of the current track appear on the display.



- To interrupt play, press **II** (or **PAUSE II** on the remote control).
  - → The playing time flashes.
- To resume play, press ▶ again (or **PLAY** ▶ on the remote control).

2 To stop play, press ■ (or **STOP** ■ on the remote control).

Note :
All the available discs will play once, then stop. When the CD has stopped playing, the set will switch to the standby mode after 15 minutes if no button is pressed.

When the CD tray is closed, you can play a CD directly by pressing the **3 CD DIRECT PLAY (1 – 3)** buttons. The CD player will stop at the end of playback of the selected disc.

3 CD DIRECT PLAY
1
2
3

Selecting a desired track

Selecting a desired track at the stop mode

1 Press ⏮ or ⏭ (**PREV** ⏮ or **NEXT** ⏭ on the remote control) until the desired track appears on the display.
2 Press ▶ (or **PLAY** ▶ on the remote control) to start playback.
   → The selected track number and elapsed playing time appear on the display.

Selecting a desired track during play mode

1 Press ⏮ or ⏭ (**PREV** ⏮ or **NEXT** ⏭ on the remote control) until the desired track appears on the display.
   → The selected track number and elapsed playing time appear on the display.

- If you press ⏮ once it will skip to the beginning of the current track and play the track again.

Searching for a particular passage during playback

- Press and hold ⏮ or ⏭ (◀◀ or ▶▶ on the remote control) until the desired passage is located. During the search, the sound is played at a faster than normal rate and at a reduced volume. Playback returns to normal when ⏮ or ⏭ is released.

Shuffle

SHUFFLE – playing all the available discs and their tracks in random order. It can also be used when tracks are programmed.

To shuffle all the discs and tracks

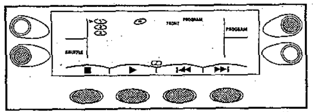
1 Press SHUFFLE.
   → "SHUFFLE" flashes briefly on the display.
   → The SHUFFLE flag, the disc and the track selected at random appear on the display.

- The discs and the tracks will now be played in random order until you press ■ .

2 Press **SHUFFLE** again to resume normal playback.
   → The SHUFFLE flag disappears from the display.

Programming Tracks

Programming tracks of a loaded CD is possible in the stop mode of the CD. The display will indicate the total tracks stored in the program. Up to 40 tracks can be stored in the memory in any order. When 40 tracks are stored and you attempt to store another track, the display will show "PROGRAM FULL".



1 Load the desired discs in the disc trays.
2 Press PROGRAM to start programming.
   → The PROGRAM flag flashes on the display.
3 Press the desired disc button to select the disc.
4 Press ⏮ or ⏭ to select the desired track.
5 Press PROGRAM to store the track.

- Repeat steps **3** to **5** to store other discs and tracks.

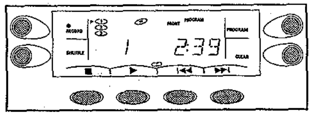
6 Press ■ once to end programming mode.
   → The total number of tracks programmed and total playing time appear on the display.

Playing the program

1 Press ▶ (or **PLAY** ▶ on the remote control) to start program playback.
   → "PROGRAM PLAY" appears on the display.
   → The track number and elapsed playing time of the current track will appear on the display.
2 Press ■ (or **STOP** ■ on the remote control) to stop program playback.

Note :
If you press any of the CD DIRECT PLAY buttons, the set will play the selected disc, the stored program will be ignored temporary. The PROGRAM flag will also temporarily disappear from the display and then reappear when the playback for the selected disc ends.

Reviewing the program



Reviewing of program is only possible in the stop mode.

- Press ⏮ or ⏭ repeatedly to review the programmed tracks.

Erasing the program (in the stop position)

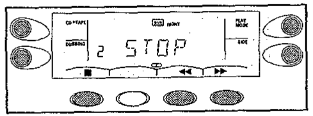
- Press CLEAR.
  - → "PROGRAM CLEARED" appears on the display.

Note :
The program is also erased when the set is disconnected from the power supply. If the CD carousel is opened, the tracks belonging to the outer two trays will be erased and "CLEARED" will scroll on the display once.

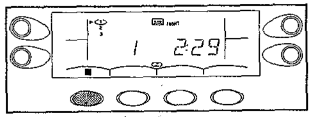
CD Synchro Start Recording

During CD synchro start recording,

- It is not advisable to fast forward/rewind your cassette in TAPE DECK 1.
- It is not possible to listen to another sound source.

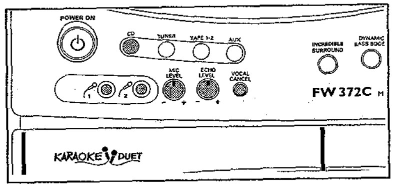


1 Press **CD** to select CD.
2 Load a disc into the disc tray.
3 You can program the tracks in the order you want them to be recorded (see Programming Tracks). If not, the tracks are recorded according to the selected disc.
4 Press **TAPE 1-2** to select **TAPE DECK 2**.
5 Load a blank cassette (full spool to the left) into **TAPE DECK 2**.
6 Press SIDE to select the FRONT side of the tape.
   → The FRONT flag appears in the display.
7 Press PLAY MODE to select the play mode (⊐ or ⊃) for **TAPE DECK 2**.
8 Press CD ▶ TAPE to start recording.
   → The RECORD flag flashes on the display.
   → The CD starts playing after a seven-second delay to prevent recording on the leader tape at the beginning of the tape.



9 Press ■ to stop recording.

Karaoke



Microphone mixing

1 Set the **MIC LEVEL** control to the minimum level to prevent accoustic feedback (e.g. a loud howling sound) before you connect the microphone.
2 Connect either 1 or 2 microphones to the mic socket.
3 Press **CD**, **TUNER**, **TAPE 1-2** or **AUX**.
4 Play the selected source.
5 Adjust the volume with **VOLUME** control.
6 Adjust the **MIC LEVEL** control to the mixing level that you want.
7 Adjust the **ECHO LEVEL** control to the mixing level that you want.
8 Adjust the **VOCAL CANCEL** control to fade out the vocal level.
9 Start singing or talking through the microphone.

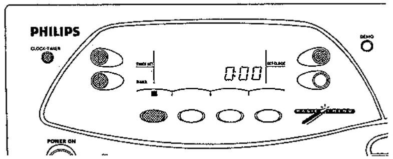
Recording the mixed sound

During microphone mixing, you can record the mixed sound on a cassette in DECK 2.

1 Load a blank cassette in **DECK 2**.
2 Press ● RECORD .

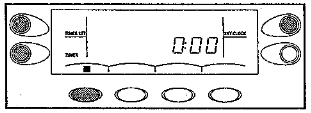
Note :

- If you do not intend to record via the microphone, unplug the microphone to avoid accidental mixing with other recording source.
- It is not possible to record the mixed sound through a microphone during cassette Dubbing mode.

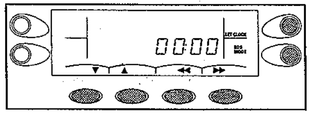


Setting the clock

The clock will display in 24-hour mode, e.g. 13:00 or 0:00.



1 Press **CLOCK•TIMER**.
→ "00:00" starts flashing.



2 Press SET CLOCK.
3 Set the hour with ▼ or ▲.
4 Set the minute with ◀◀ or ▶▶.
5 Press SET CLOCK again to store the setting.
→ The clock starts running.

Note:

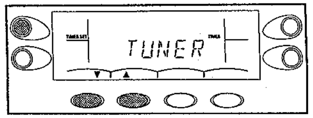
– When a power interruption occurs, the clock settings are erased, and "0:00" will flash on the display.

Setting the Timer

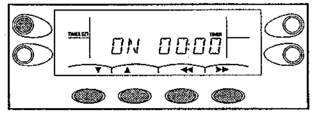
- The system can switch on to CD, TUNER or TAPE 1 mode automatically at a preset time. It can serve as an alarm to wake you up. After half an hour from the preset time, the system will return to the standby mode if no button is pressed.
- Before setting the timer, make sure the clock is set correctly.
- The timer works only once for each setting.
- **The volume of the timer will be at the last setting before the set is switched off.**

Timer Setting

1 Press **CLOCK•TIMER**.
2 Press TIMER SET.
→ The TIMER flag flashes.



3 Press ▼ or ▲ to select the desired source.
→ The display will switch as follows:
TUNER → CD → TAPE 1 → TUNER.
4 Press TIMER SET to confirm your selection.
→ The display will show " ON 00:00 " and "00:00 " flashes.



5 Press ▼ or ▲ to set the hour for the timer to start.
6 Press ◀◀ or ▶▶ to set the minutes for the timer to start.
7 Press TIMER SET to store the start time.
→ The TIMER is now set.
→ The TIMER flag remains lit.

To stop the TIMER

1 Press **CLOCK•TIMER**.
2 Press TIMER on the set.
→ The TIMER is now off.

To start the TIMER again

1 Press **CLOCK•TIMER**.
2 Press TIMER on the set.
→ The display will show the last set start time of the TIMER and its flag.
→ The TIMER flag remains lit.

Notes:

1 If the source selected is TUNER, the last tuned frequency will be switched on.
2 If the source selected is CD, the first track of the last selected disc will be played. If the CD trays are empty, the TUNER source will be selected instead.
3 If the source selected is TAPE 1, when the preset time is reached during high speed dubbing, the TUNER source will be selected instead.

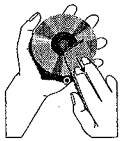
Maintenance

Cleaning the Cabinet

- Use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, spirits, ammonia or abrasives.

Cleaning Discs

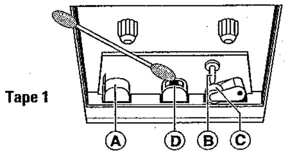
- When a disc becomes dirty, clean it with a cleaning cloth. Wipe the disc from the center out.

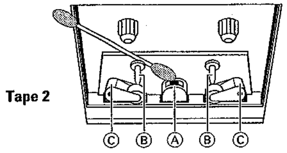


- Do not use solvents such as benzine, thinner, commercially available cleaners, or anti-static spray intended for analog records.

Cleaning the Heads and the Tape Paths

- To ensure good recording and playback quality, clean the heads Ⓐ and Ⓓ, the capstan(s) Ⓑ, and pressure roller(s) Ⓒ after every 50 hours of tape operation.





- Use a cotton swab slightly moistened with cleaning fluid or alcohol.
- You can also clean the head by playing a cleaning tape through once.

Demagnetizing the heads

- Use a demagnetizing cassette available at your dealer.

Troubleshooting Guide

Warning! Under no circumstances should you try to repair the set yourself, as this will invalidate the warranty.

- If a fault occurs, check the points listed below before taking the set for repair.
- Should any problems persist after you have made these checks, consult your nearest dealer or service center.

Symptom	Cause	Remedy
Radio Reception		
The STEREO indicator flashes.	The signal is too weak.	Adjust the antenna.
Severe hum or noise	The signal strength is too weak. The TV or VCR is too close to the stereo system.	Adjust the antenna. Separate the stereo system from the TV or VCR. Connect an external antenna for better reception.
Cassette Deck Operation		
"CANNOT RECORD" is displayed.	No cassette in the cassette deck. The small tab has been broken.	Insert a blank cassette into the cassette deck. Put a piece of clear adhesive tape over the opening.
"RECORDING ACTIVE" is displayed.	A recording is active	Stop the recording or wait until it is finished.
Recording or playback cannot be made or there is a decrease in audio level.	Dirty tape heads. Magnetic build-up in the record/playback head	See section on cassette deck maintenance. Use demagnetizing cassette
Excessive wow or flutter, or sound drop-out.	Contamination of the capstans or pressure rollers.	See section on cassette deck maintenance.
CD Player Operation		
"WRONG TRACK" is displayed.	The selected track number does not exist on this CD or it is not included in this program	Select a correct track number.
"NO DISC" is displayed.	The disc is inserted upside down. Moisture condensation. There is no disc in the CD tray. The CD is dirty, badly scratched or warped.	Place CD with printed side up. Wait until lens has adjusted to normal room temperature. Insert a CD. Replace or clean the CD.
General		
Set not working.	Set does not react when buttons are pressed.	Press POWER ON to switch the unit off, then switch it on again. Or, unplug the AC power plug from the wall outlet, then plug it in again.
No or poor sound.	Volume is not turned up. The headphones are connected. Speakers are not connected or are connected wrongly.	Adjust VOLUME. Disconnect the headphones. Check that the speakers are connected correctly. Make sure that the stripped speaker wire is clamped.
Reversed left and right sound.	Speakers are connected wrongly.	Check the speaker connections and speaker location.
Lack of bass sound or apparently imprecise physical location of musical instruments.	Speakers are connected wrongly.	Check the speaker connection for proper phasing, red/black wires to red/black terminals.
Clock blinking.	There was a power out.	Reset the clock.
Remote control has no effect on the set.	The distance to the system is too large. Batteries are inserted incorrectly. Batteries are dead. Wrong sound source is selected.	Reduce the distance. Insert the batteries correctly. Replace the batteries. Select the sound source before pressing the function button, (PLAY, REW ◄◄, etc.)
Timer not working	Timer not on. Dubbing/recording is active.	Press TIMER on the set to switch on the timer.
"PRESS DEMO TO EXIT" is displayed.	Demo mode is switched on.	Press POWER ON or DEMO to switch off demo

Warnings & Safety

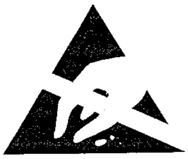
(GB) WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

(F) ATTENTION

Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer le bracelet serti d´une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l´on utilise soient également à ce potentiel.

ESD



(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING

Alle IC´s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SAFETY

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
Safety components are marked by the symbol ⚠

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.
Componenty di sicurezza sono marcati con ⚠

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.
Les composants de sécurité sont marqués ⚠

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool ⚠

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(DK) Advarsel !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

(FIN) Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

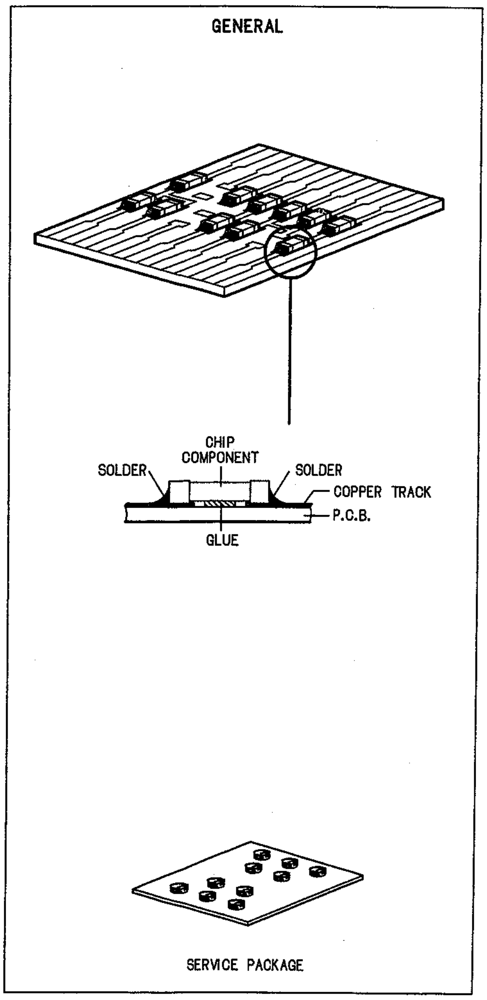
(F)
"Pour votre sécurite, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

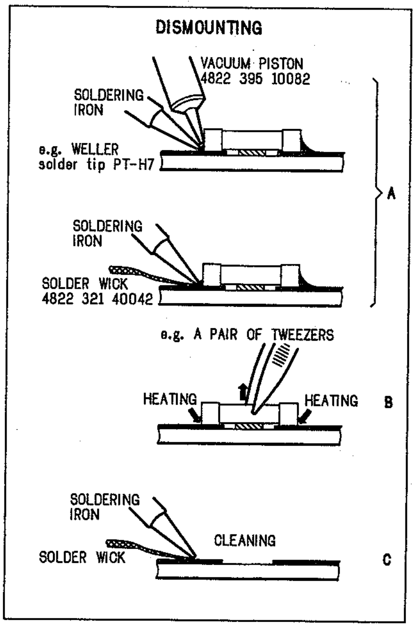
SERVICE HINTS

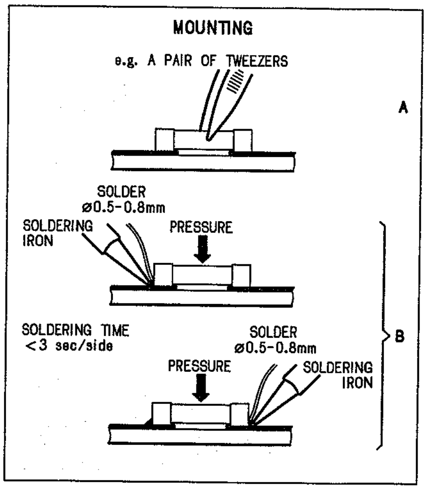
Service Tools

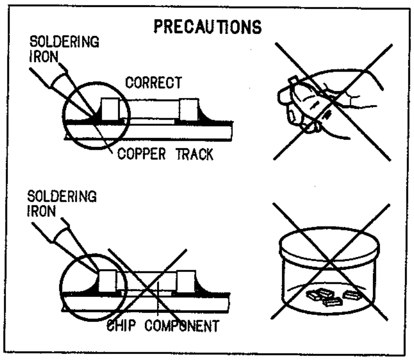
TORX screwdriver set SBC 163	4822 295 50145
Audio signal disc SBC 429	4822 397 30184
Test disc 5 (disc without errors) + **Test disc 5A** (disc with dropout errors, black spots and fingerprints) SBC 426/426A	4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30dB level without "pause")	4822 397 30155
Universal test cassette Fe SBC 420	4822 397 30071
Universal test cassette CrO2 SBC 419	4822 397 30069

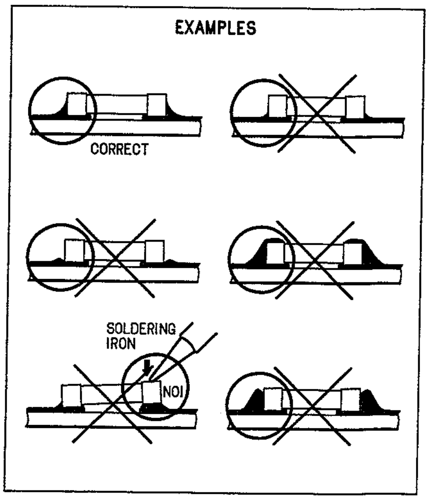
Handling Chip Components


GENERAL
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B.
GLUE
SERVICE PACKAGE


DISMOUNTING
VACUUM PISTON
4822 395 10082
SOLDERING IRON
e.g. WELLER solder tip PT-H7
SOLDERING IRON
SOLDER WICK
4822 321 40042
A
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
CLEANING
SOLDER WICK
C


MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
ø0.5-0.8mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
<3 sec/side
SOLDER
ø0.5-0.8mm
PRESSURE
SOLDERING IRON
B


PRECAUTIONS
SOLDERING IRON
CORRECT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT


EXAMPLES
CORRECT
SOLDERING IRON
NO!

DISMANTLING INSTRUCTIONS

Dismantling of Cassette flap

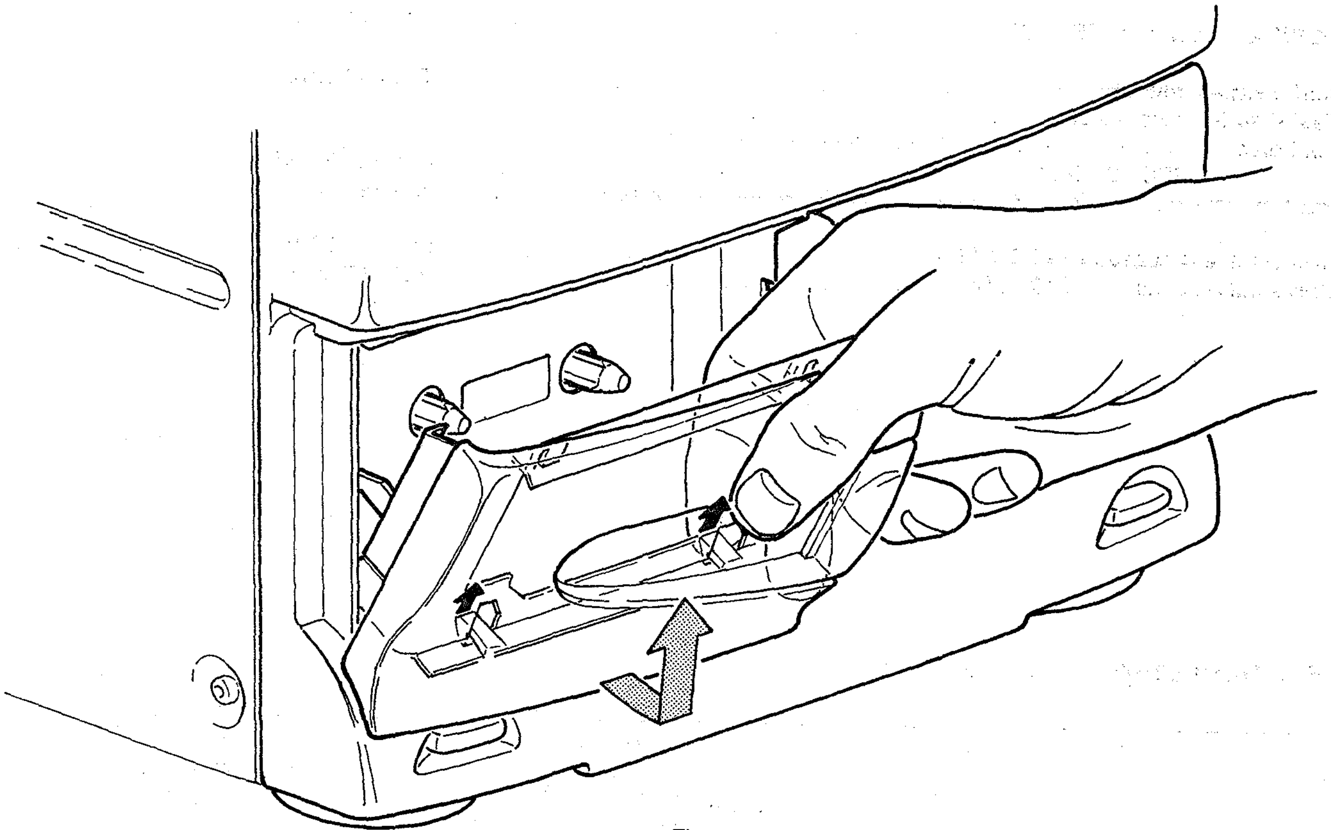
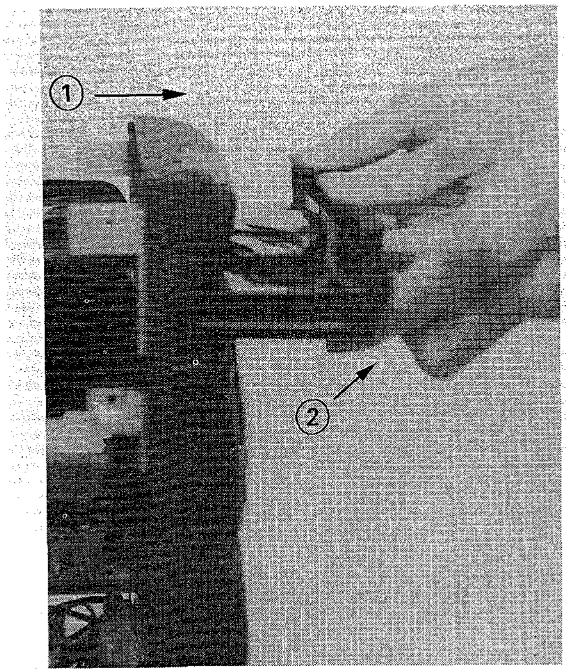
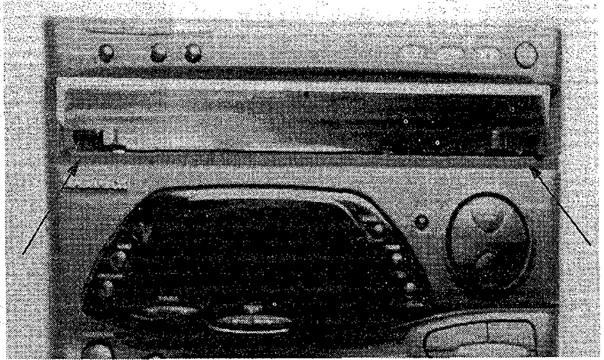


Fig.1

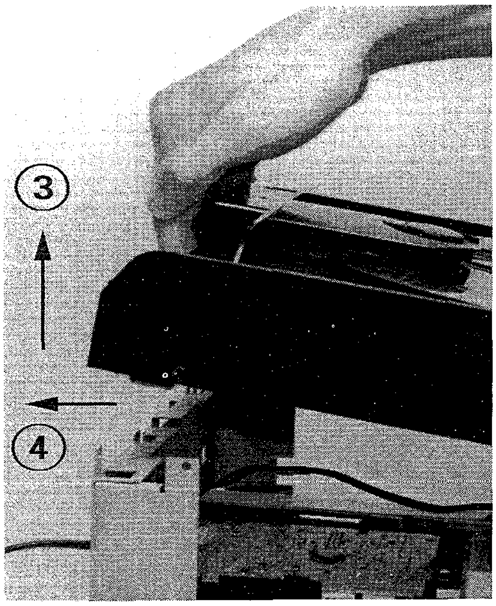
Dismantling of Front



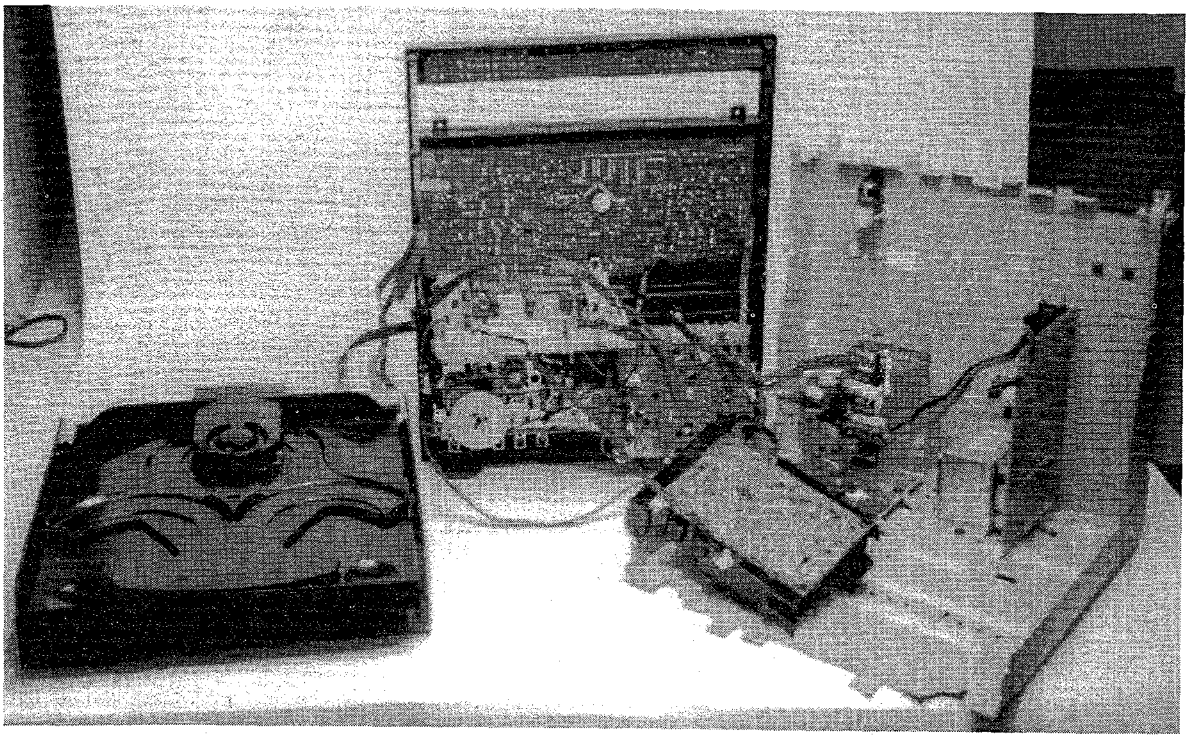


1) Remove top cover
2) Loosen 3X screw on bottom
3) Slide the CD tray out as shown in arrow 1.
4) Remove the CD door as indicated.

5) Loosen 2X screw from the front panel at the CD tray.

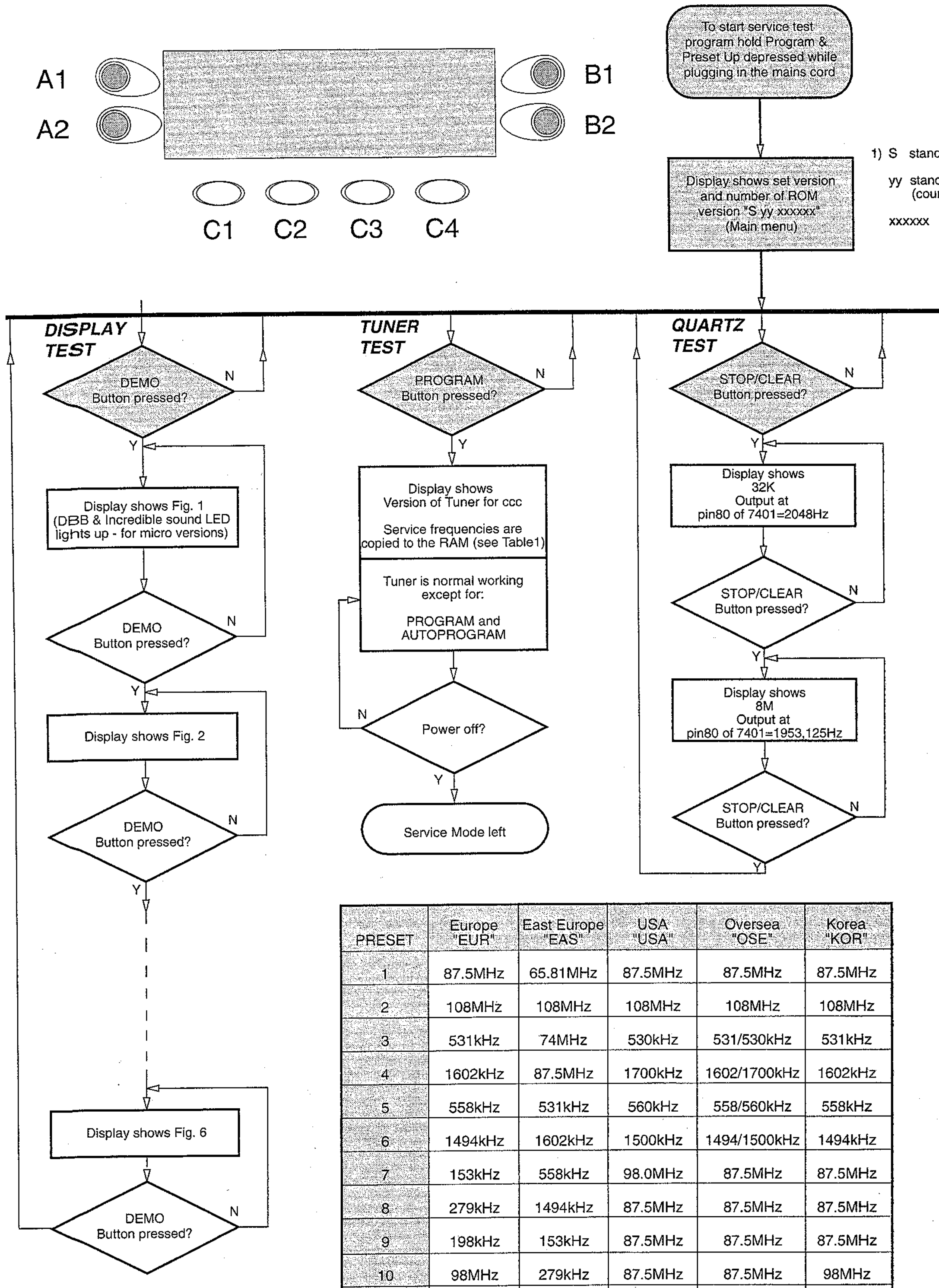


6) Lift the CDC module up and remove the module as indicated in arrow 3.



5) Service position

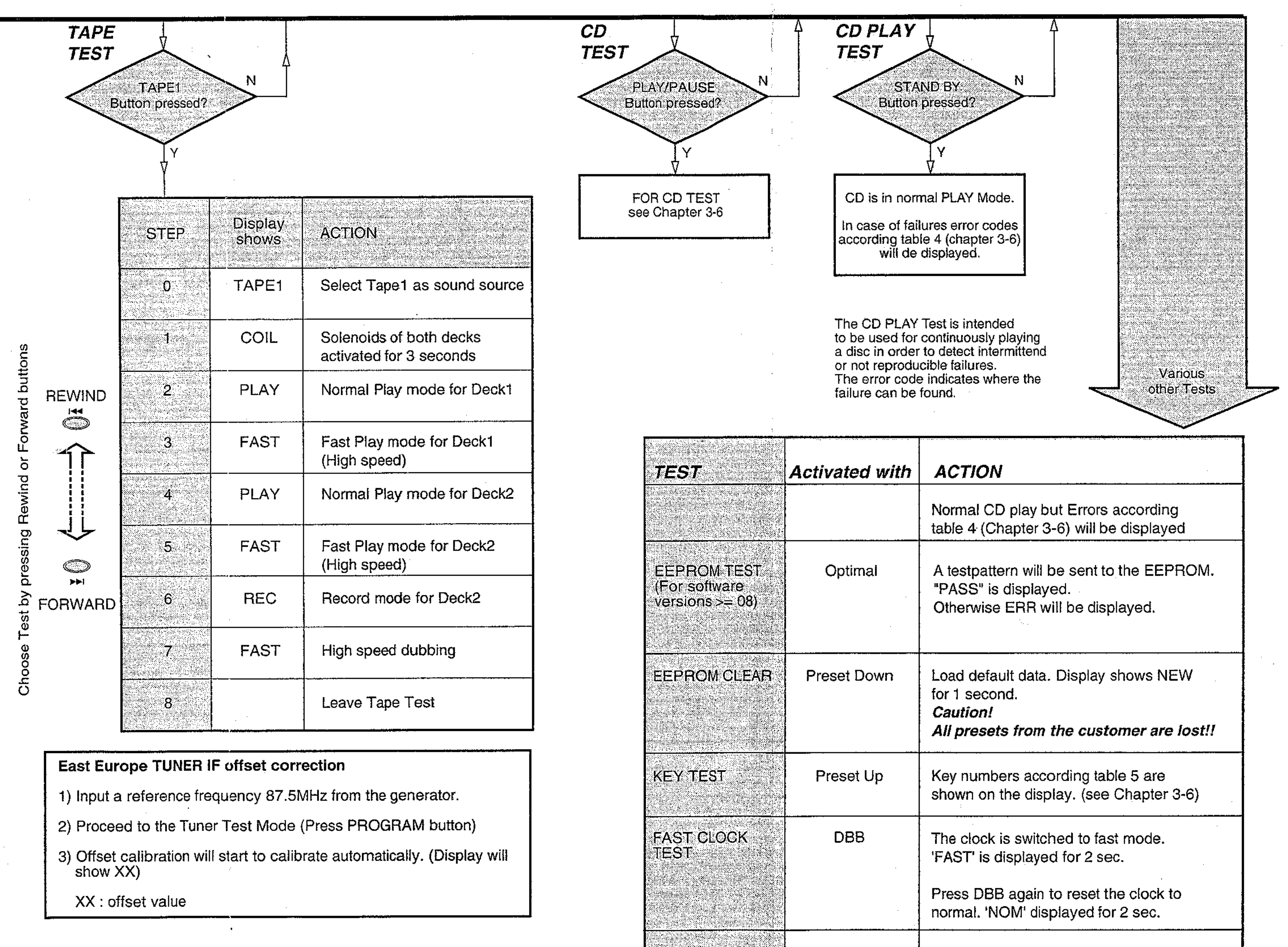
SERVICE TEST PROGRAM


A1
A2
B1
B2
C1
C2
C3
C4
To start service test program hold Program & Preset Up depressed while plugging in the mains cord
Display shows set version and number of ROM version "S yy xxxxxx" (Main menu)
DISPLAY TEST
DEMO Button pressed?
N
Y
Display shows Fig. 1 (DBB & Incredible sound LED lights up - for micro versions)
DEMO Button pressed?
N
Y
Display shows Fig. 2
DEMO Button pressed?
N
Y
Display shows Fig. 6
DEMO Button pressed?
N
TUNER TEST
PROGRAM Button pressed?
N
Y
Display shows Version of Tuner for ccc
Service frequencies are copied to the RAM (see Table1)
Tuner is normal working except for:
PROGRAM and AUTOPROGRAM
Power off?
N
Y
Service Mode left
QUARTZ TEST
STOP/CLEAR Button pressed?
N
Y
Display shows 32K Output at pin80 of 7401=2048Hz
STOP/CLEAR Button pressed?
N
Y
Display shows 8M Output at pin80 of 7401=1953,125Hz
STOP/CLEAR Button pressed?
N
Y

1) S stands for Service Testprogram

yy stands for software version number of uP on Front Board (counted from 01 upwards)

xxxxxx stands for model numbers


TAPE TEST
TAPE1 Button pressed?
N
Y
Choose Test by pressing Rewind or Forward buttons
REWIND
FORWARD
CD TEST
PLAY/PAUSE Button pressed?
N
Y
FOR CD TEST see Chapter 3-6
CD PLAY TEST
STAND BY Button pressed?
N
Y
CD is in normal PLAY Mode.
In case of failures error codes according table 4 (chapter 3-6) will de displayed.
Various other Tests

STEP	Display shows	ACTION
0	TAPE1	Select Tape1 as sound source
1	COIL	Solenoids of both decks activated for 3 seconds
2	PLAY	Normal Play mode for Deck1
3	FAST	Fast Play mode for Deck1 (High speed)
4	PLAY	Normal Play mode for Deck2
5	FAST	Fast Play mode for Deck2 (High speed)
6	REC	Record mode for Deck2
7	FAST	High speed dubbing
8		Leave Tape Test

The CD PLAY Test is intended to be used for continuously playing a disc in order to detect intermittend or not reproducible failures.
The error code indicates where the failure can be found.

TEST	*Activated with*	*ACTION*
		Normal CD play but Errors according table 4 (Chapter 3-6) will be displayed
EEPROM TEST (For software versions >= 08)	Optimal	A testpattern will be sent to the EEPROM. "PASS" is displayed. Otherwise ERR will be displayed.
EEPROM CLEAR	Preset Down	Load default data. Display shows NEW for 1 second. ***Caution!*** ***All presets from the customer are lost!!***
KEY TEST	Preset Up	Key numbers according table 5 are shown on the display. (see Chapter 3-6)
FAST CLOCK TEST	DBB	The clock is switched to fast mode. 'FAST' is displayed for 2 sec. Press DBB again to reset the clock to normal. 'NOM' displayed for 2 sec.
LEAVE SERVICE TESTPROGRAM	disconnect mains	

PRESET	Europe "EUR"	East Europe "EAS"	USA "USA"	Oversea "OSE"	Korea "KOR"
1	87.5MHz	65.81MHz	87.5MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	74MHz	530kHz	531/530kHz	531kHz
4	1602kHz	87.5MHz	1700kHz	1602/1700kHz	1602kHz
5	558kHz	531kHz	560kHz	558/560kHz	558kHz
6	1494kHz	1602kHz	1500kHz	1494/1500kHz	1494kHz
7	153kHz	558kHz	98.0MHz	87.5MHz	87.5MHz
8	279kHz	1494kHz	87.5MHz	87.5MHz	87.5MHz
9	198kHz	153kHz	87.5MHz	87.5MHz	87.5MHz
10	98MHz	279kHz	87.5MHz	87.5MHz	98MHz
11	87.5MHz	198kHz	87.5MHz	98MHz	98MHz

Table 1

East Europe TUNER IF offset correction

1) Input a reference frequency 87.5MHz from the generator.

2) Proceed to the Tuner Test Mode (Press PROGRAM button)

3) Offset calibration will start to calibrate automatically. (Display will show XX)

XX : offset value

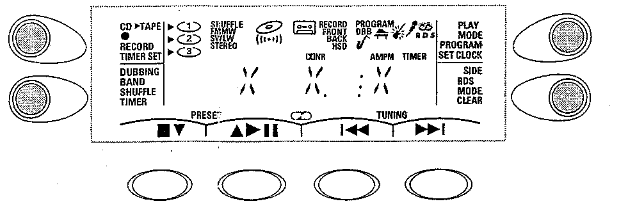

CD ▸TAPE
RECORD
TIMER SET
DUBBING
BAND
SHUFFLE
TIMER
SHUFFLE
FM/MW
SW/LW
STEREO
RECORD
FRONT
BACK
HSD
PROGRAM
DBB
RDS
CDNR
AMPM
TIMER
PLAY
MODE
PROGRAM
SET CLOCK
SIDE
RDS
MODE
CLEAR
PRESET
TUNING

Figure 6

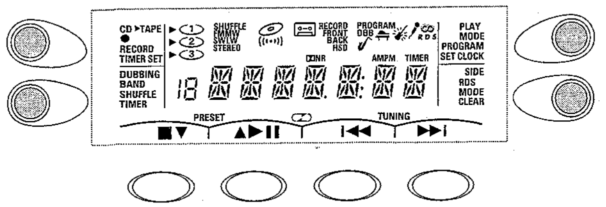

CD ▸TAPE
RECORD
TIMER SET
DUBBING
BAND
SHUFFLE
TIMER
PRESET
TUNING
PLAY
MODE
PROGRAM
SET CLOCK
SIDE
RDS
MODE
CLEAR

Figure 2

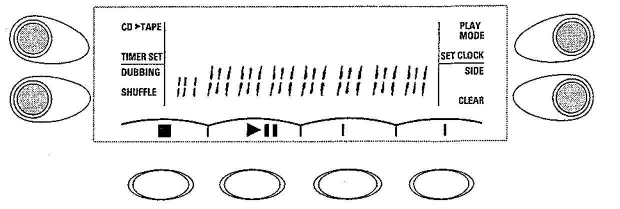

CD ▸TAPE
TIMER SET
DUBBING
SHUFFLE
PLAY
MODE
SET CLOCK
SIDE
CLEAR

Figure 3

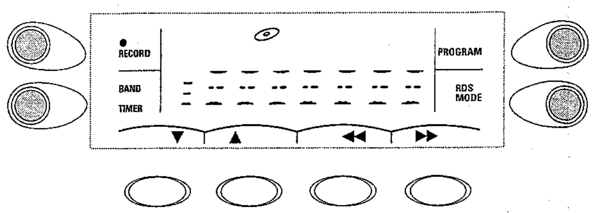

RECORD
BAND
TIMER
PROGRAM
RDS
MODE

Figure 4

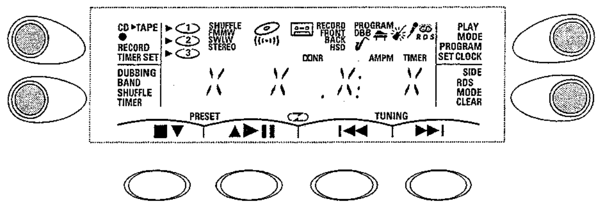

CD ▸TAPE
RECORD
TIMER SET
DUBBING
BAND
SHUFFLE
TIMER
PRESET
TUNING
PLAY
MODE
PROGRAM
SET CLOCK
SIDE
RDS
MODE
CLEAR

Figure 5

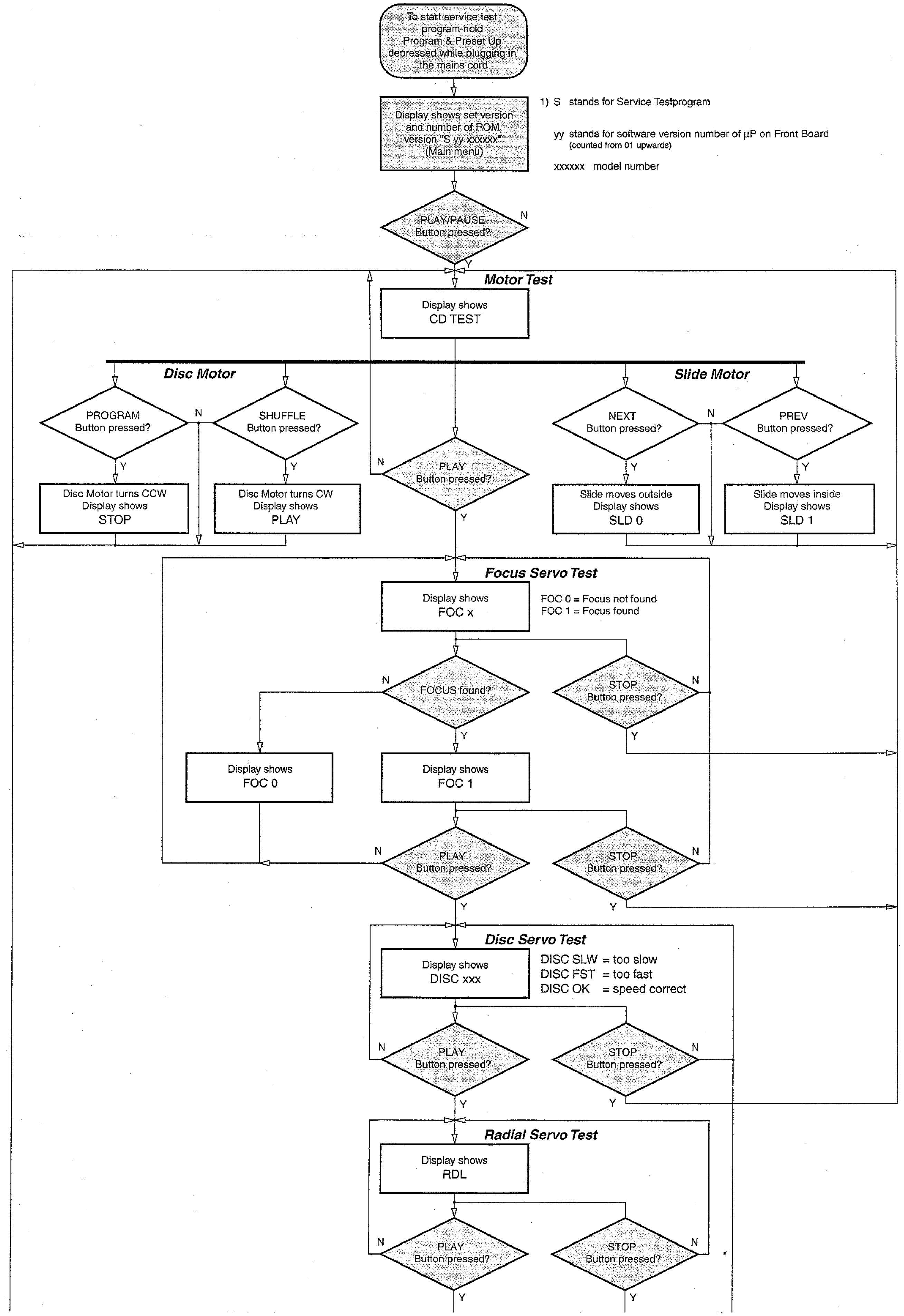
Error number	Error description
E 1002	Focus error
E 1007	Subcode error (no subcode within time)
E 1008	TOC error, out of lead-in area while reading TOC
E 1010	Radial error
E 1011	Sledge error (innerswitch used as indication)
E 1012	Fatal sledge error (FATAL) (when moving inside)
E 1013	Turnatble motor error (disc acceleration failed)
E 1014	Jump-offtrack error (too less grooves within time)
E 1020	PLL locked error
E 1070	Carousel blocked in a disc position
E 1071	Carousel blocked in the middle
E 1075	Drawer blocked in the middle
E 1076	Drawer blocked in open or closed state

For FW362

Key activated	Display	Key activated	Display	Key activated	Display
CD Open/Close	01	B2	10	Optimal	19
Timer/Clock	02	Demo	11	Jazz	20
A1	03	Power/Standby	12	Rock	21
A2	04	CD	13	Pop	22
C1	05	Tuner	14	Classic	23
C2	06	Tape	15	Dolby	24
C3	07	Aux	16	Any RC keys	RC
C4	08	Incredible Sound	17		
B1	09	Dbb	18		

For FW372C/395C

Key activated	Display	Key activated	Display	Key activated	Display
DISC 1	01	C4	11	Dbb	21
DISC 2	02	B1	12	Optimal	22
DISC 3	03	B2	13	Jazz	23
CD Open/Close	04	Demo	14	Rock	24
Timer/Clock	05	Power/Standby	15	Pop	25
A1	06	CD	16	Classic	26
A2	07	Tuner	17	Dolby	27
C1	08	Tape	18	any RC keys	RC
C2	09	Aux	19		
C3	10	Incredible Sound	20		


To start service test program hold Program & Preset Up depressed while plugging in the mains cord
Display shows set version and number of ROM version "S yy xxxxxx" (Main menu)
PLAY/PAUSE Button pressed?
N
Y
Motor Test
Display shows CD TEST
Disc Motor
Slide Motor
PROGRAM Button pressed?
SHUFFLE Button pressed?
NEXT Button pressed?
PREV Button pressed?
Disc Motor turns CCW Display shows STOP
Disc Motor turns CW Display shows PLAY
PLAY Button pressed?
Slide moves outside Display shows SLD 0
Slide moves inside Display shows SLD 1
Focus Servo Test
Display shows FOC x
FOCUS found?
STOP Button pressed?
Display shows FOC 0
Display shows FOC 1
PLAY Button pressed?
STOP Button pressed?
Disc Servo Test
Display shows DISC xxx
PLAY Button pressed?
STOP Button pressed?
Radial Servo Test
Display shows RDL
PLAY Button pressed?
STOP Button pressed?

1) S stands for Service Testprogram

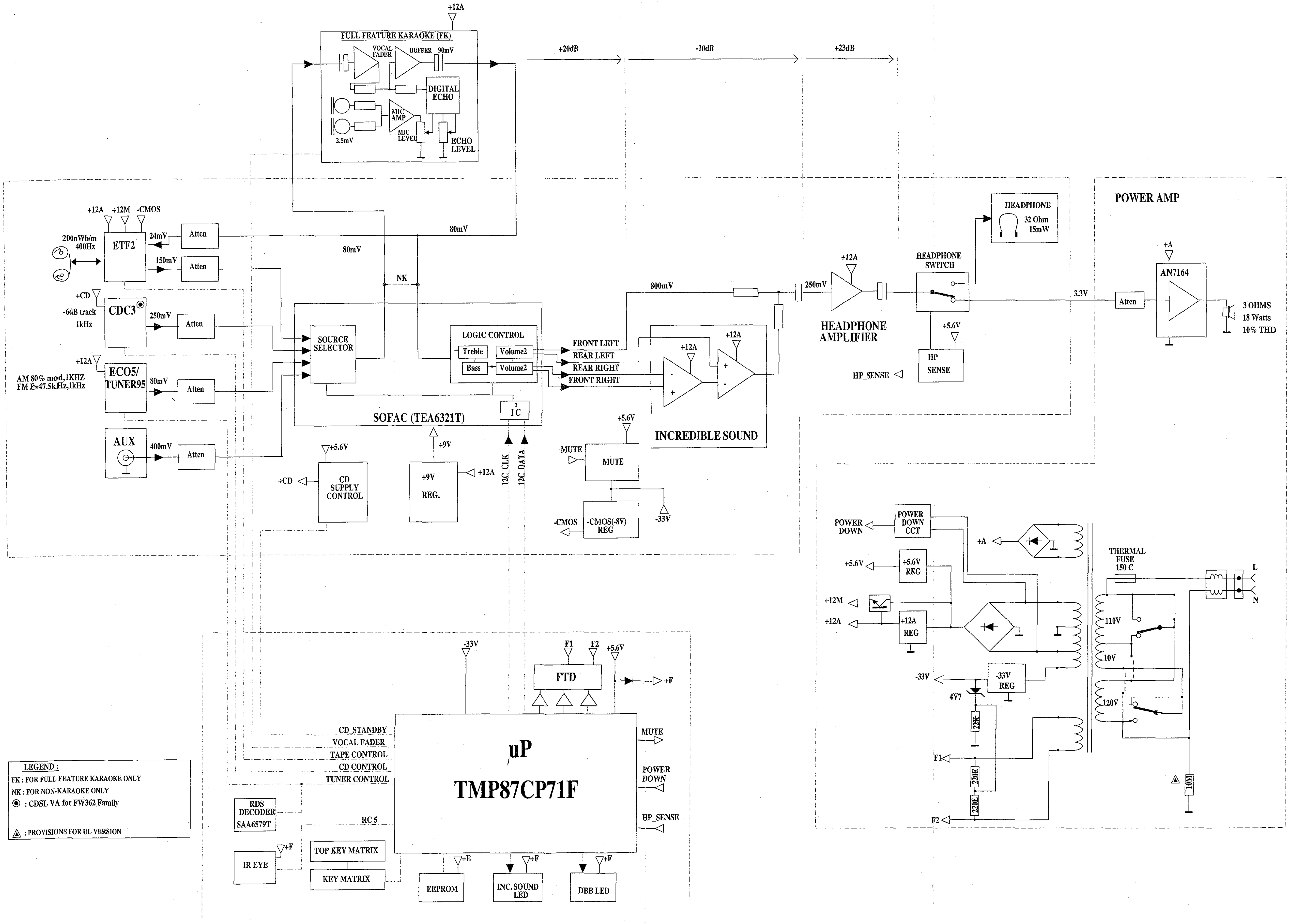
yy stands for software version number of µP on Front Board (counted from 01 upwards)

xxxxxx model number

FOC 0 = Focus not found
FOC 1 = Focus found

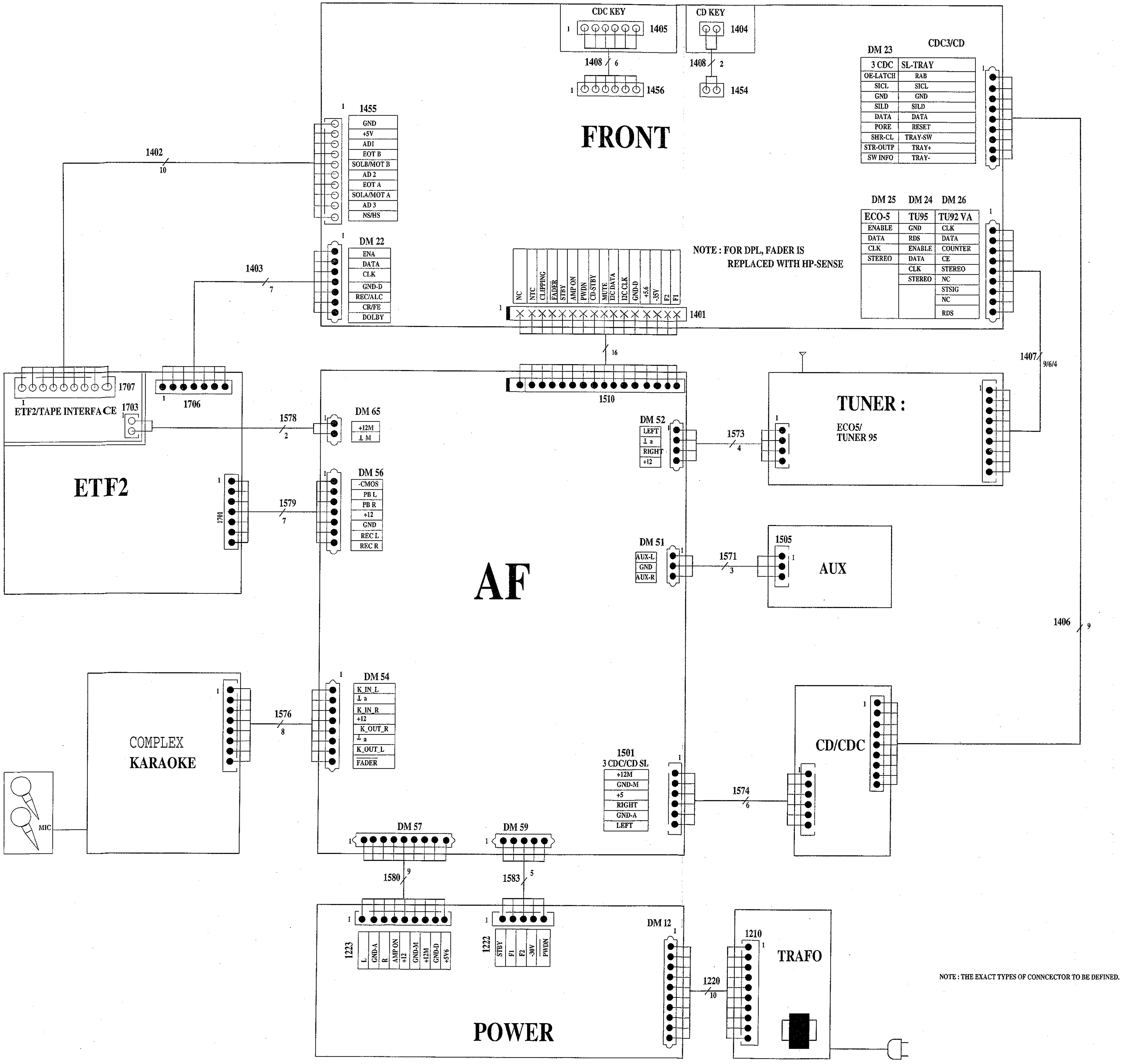
DISC SLW = too slow
DISC FST = too fast
DISC OK = speed correct

BLOCK DIAGRAM

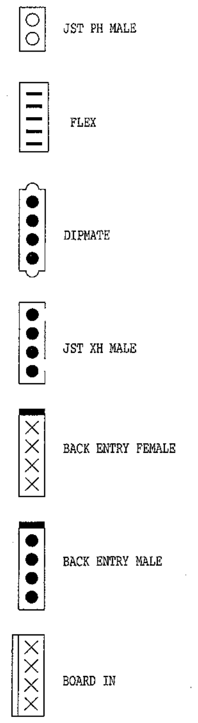

+12A
FULL FEATURE KARAOKE (FK)
VOCAL FADER
BUFFER
90mV
DIGITAL ECHO
MIC AMP
MIC LEVEL
ECHO LEVEL
2.5mV
+20dB
-10dB
+23dB
+12A
+12M
-CMOS
200nWb/m 400Hz
ETF2
24mV
150mV
Atten
80mV
80mV
NK
+CD
-6dB track 1kHz
CDC3
250mV
+12A
AM 80% mod,1KHZ
FM Ξ=47.5kHz,1kHz
ECO5/ TUNER95
80mV
AUX
400mV
SOURCE SELECTOR
LOGIC CONTROL
Treble
Bass
Volume2
Volume2
IC
SOFAC (TEA6321T)
+9V
+9V REG.
+12A
+5.6V
+CD
CD SUPPLY CONTROL
I2C_CLK
I2C_DATA
FRONT LEFT
REAR LEFT
REAR RIGHT
FRONT RIGHT
800mV
INCREDIBLE SOUND
+5.6V
MUTE
MUTE
-CMOS
-CMOS(-8V) REG
-33V
250mV
HEADPHONE AMPLIFIER
HEADPHONE SWITCH
HEADPHONE 32 Ohm 15mW
HP SENSE
HP_SENSE
3.3V
POWER AMP
+A
AN7164
3 OHMS 18 Watts 10% THD
POWER DOWN
POWER DOWN CCT
+5.6V REG
+12M
+12A
+12A REG
-33V
-33V REG
4V7
22K
220E
220E
F1
F2
THERMAL FUSE 150 C
110V
10V
120V
L
N
10M
-33V
F1
F2
+5.6V
FTD
+F
uP
TMP87CP71F
CD_STANDBY
VOCAL FADER
TAPE CONTROL
CD CONTROL
TUNER CONTROL
MUTE
POWER DOWN
HP_SENSE
RDS DECODER SAA6579T
RC 5
IR EYE
+F
TOP KEY MATRIX
KEY MATRIX
+E
EEPROM
+F
INC. SOUND LED
+F
DBB LED

LEGEND :
FK : FOR FULL FEATURE KARAOKE ONLY
NK : FOR NON-KARAOKE ONLY
◉ : CDSL VA for FW362 Family
▲ : PROVISIONS FOR UL VERSION

WIRING DIAGRAM


FRONT
CDC KEY
1405
CD KEY
1404
1408 6
1456
1408 2
1454
1455
GND
+5V
AD1
EOT B
SOLB/MOT B
AD 2
EOT A
SOLA/MOT A
AD 3
NS/HS
1402 10
DM 22
ENA
DATA
CLK
GND-D
REC/ALC
CR/FE
DOLBY
1403 7
NC
NTC
CLIPPING
FADER
STBY
AMP ON
PWDN
CD-STBY
MUTE
I2C DATA
I2C CLK
GND-D
+5.6
-35V
F2
F1
1401
16
CDC3/CD
DM 23
3 CDC
SL-TRAY
OE-LATCH
RAB
SICL
SICL
GND
GND
SILD
SILD
DATA
DATA
PORE
RESET
SHR-CL
TRAY-SW
STR-OUTP
TRAY+
SW INFO
TRAY-
DM 25
DM 24
DM 26
ECO-5
TU95
TU92 VA
ENABLE
GND
CLK
DATA
RDS
DATA
CLK
ENABLE
COUNTER
STEREO
DATA
CE
CLK
STEREO
STEREO
NC
STSIG
NC
RDS
NOTE : FOR DPL, FADER IS REPLACED WITH HP-SENSE
1407 9/6/4
1706
1707
ETF2/TAPE INTERFACE
1703
ETF2
1701
1510
AF
DM 65
+12M
⊥ M
1578 2
DM 56
-CMOS
PB L
PB R
+12
GND
REC L
REC R
1579 7
DM 52
LEFT
⊥ a
RIGHT
+12
1573 4
TUNER :
ECO5/
TUNER 95
DM 51
AUX-L
GND
AUX-R
1571 3
1505
AUX
1406 9
COMPLEX
KARAOKE
MIC
1576 8
DM 54
K_IN_L
⊥ a
K_IN_R
+12
K_OUT_R
⊥ a
K_OUT_L
FADER
1501
3 CDC/CD SL
+12M
GND-M
+5
RIGHT
GND-A
LEFT
1574 6
CD/CDC
DM 57
DM 59
1580 9
1583 5
1223
L
GND-A
R
AMP ON
+12
GND-M
+12M
GND-D
+5V6
1222
STBY
F1
F2
-30V
PWDN
DM 12
1220 10
1210
TRAFO
POWER

NOTE : THE EXACT TYPES OF CONNCECTOR TO BE DEFINED.


JST PH MALE
FLEX
DIPMATE
JST XH MALE
BACK ENTRY FEMALE
BACK ENTRY MALE
BOARD IN

FRONT BOARD

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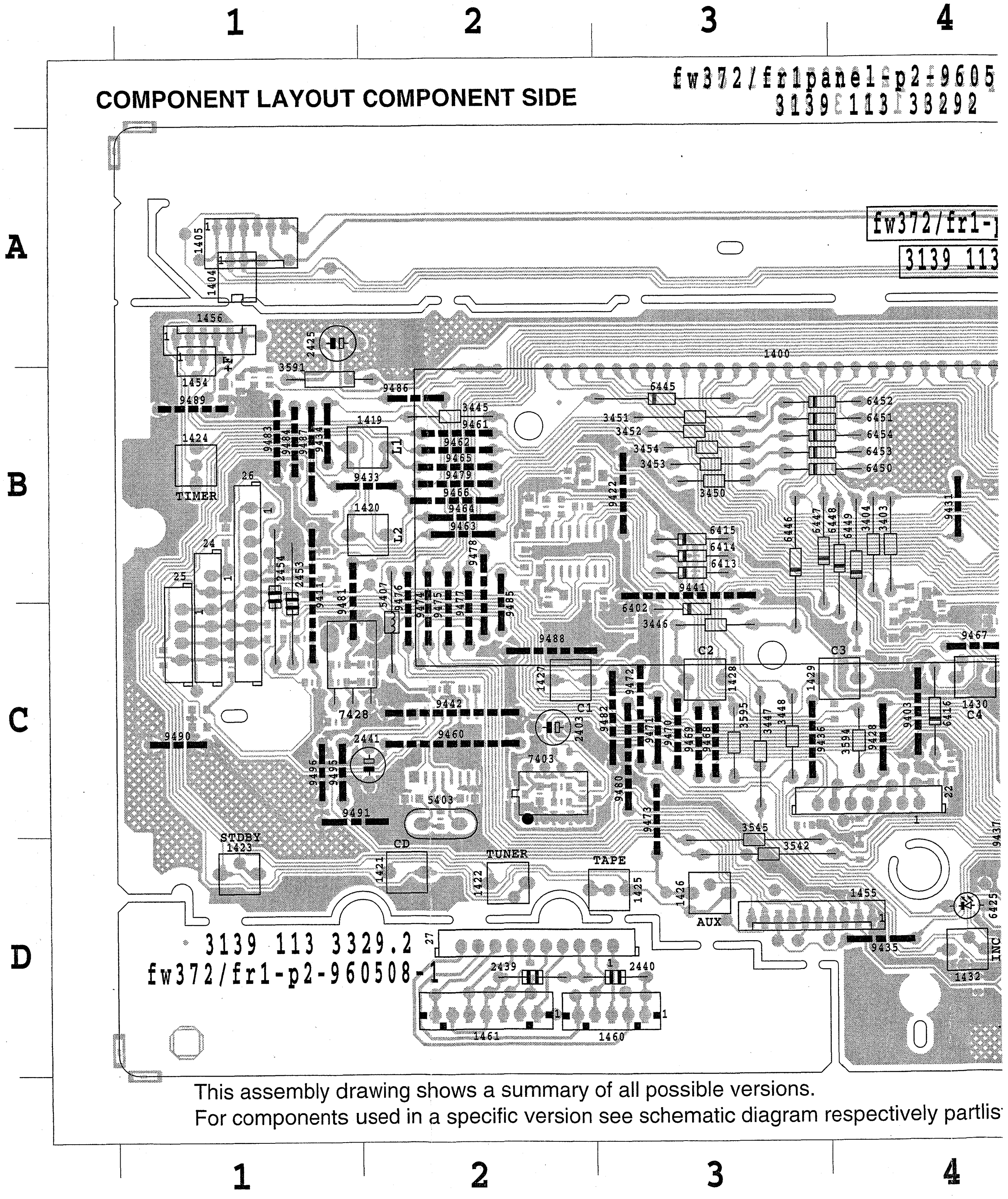
24 C 1	1417 B 5	1428 C 3	1455 D 3	2438 B 7	3446 C 3	3542 D 3	5410 C 6	6420 C 7	6451 B 3	94
1400 B 3	1418 B 5	1429 C 4	1456 A 1	2439 D 2	3447 C 3	3545 D 3	6401 D 4	6421 A 6	6452 B 3	94
1401 D 5	1419 B 2	1430 C 4	1458 B 7	2440 D 3	3448 C 3	3580 D 6	6402 C 3	6422 A 6	6453 B 3	94
1404 A 1	1420 B 2	1431 D 5	1460 D 3	2441 C 2	3450 B 3	3591 B 1	6412 C 5	6423 A 7	6454 B 3	94
1405 A 1	1421 D 2	1432 D 4	1461 D 2	2453 C 1	3451 B 3	3592 A 5	6413 B 3	6425 D 4	6455 B 5	94
1411 C 7	1422 D 2	1433 D 5	2401 C 4	2454 B 1	3452 B 3	3594 C 4	6414 B 3	6445 B 3	6456 B 5	94
1412 D 7	1423 D 1	1441 A 7	2402 C 5	2459 B 7	3453 B 3	3595 C 3	6415 B 3	6446 B 3	6457 B 5	94
1413 C 6	1424 B 1	1442 A 6	2403 C 2	3403 B 4	3454 B 3	5402 C 6	6416 C 4	6447 B 3	6458 B 5	94
1414 D 6	1425 D 3	1443 A 7	2415 C 6	3404 B 4	3479 D 5	5403 C 2	6417 C 6	6448 B 4	7403 C 2	94

COMPONENT LAYOUT COMPONENT SIDE

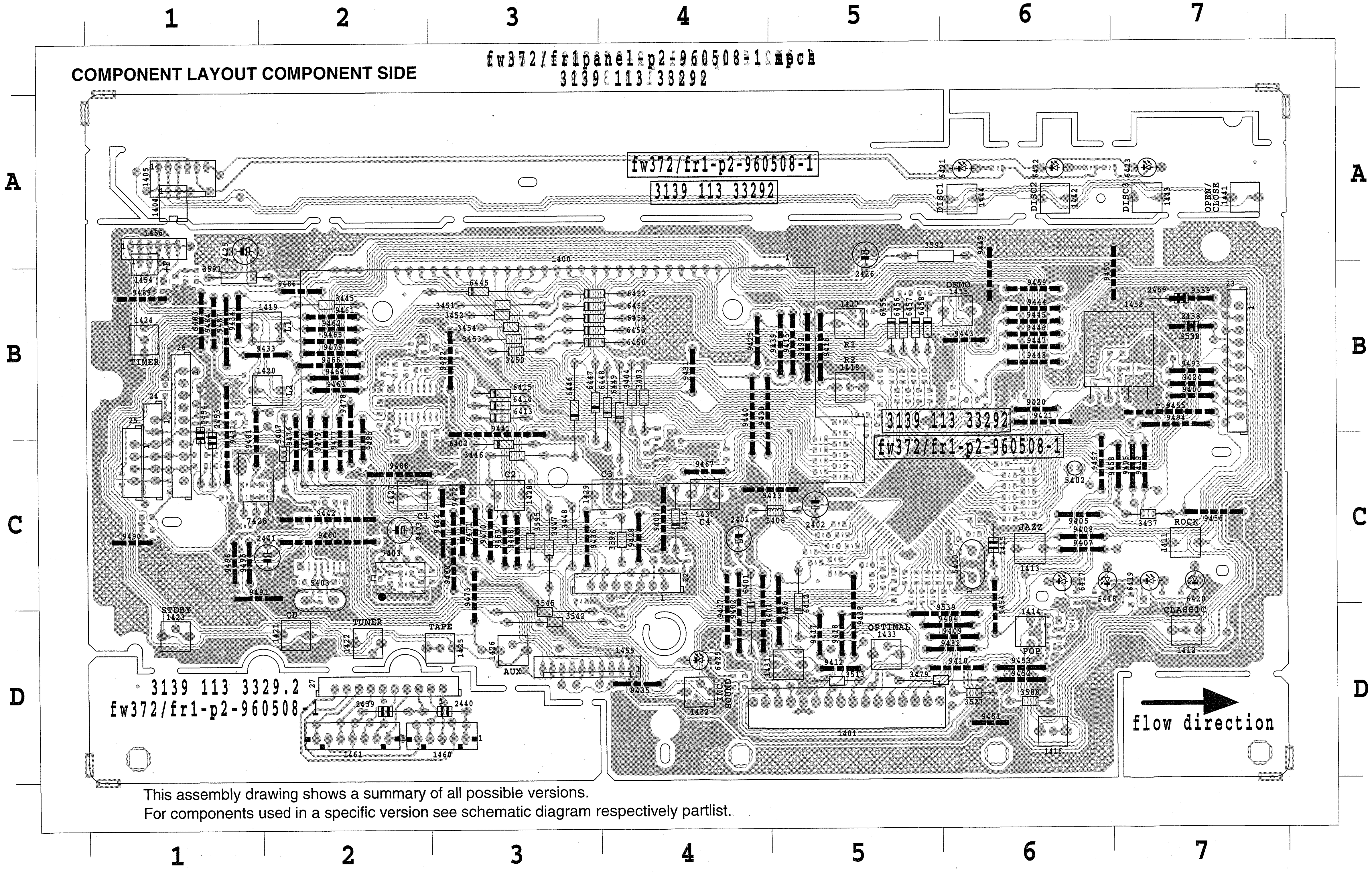


1
2
3
4
fw372/fr1panel-p2-9605
3139 113 33292
A
B
C
D
fw372/fr1-
3139 113
TIMER
STDBY
CD
TUNER
TAPE
AUX
3139 113 3329.2
fw372/fr1-p2-960508-1

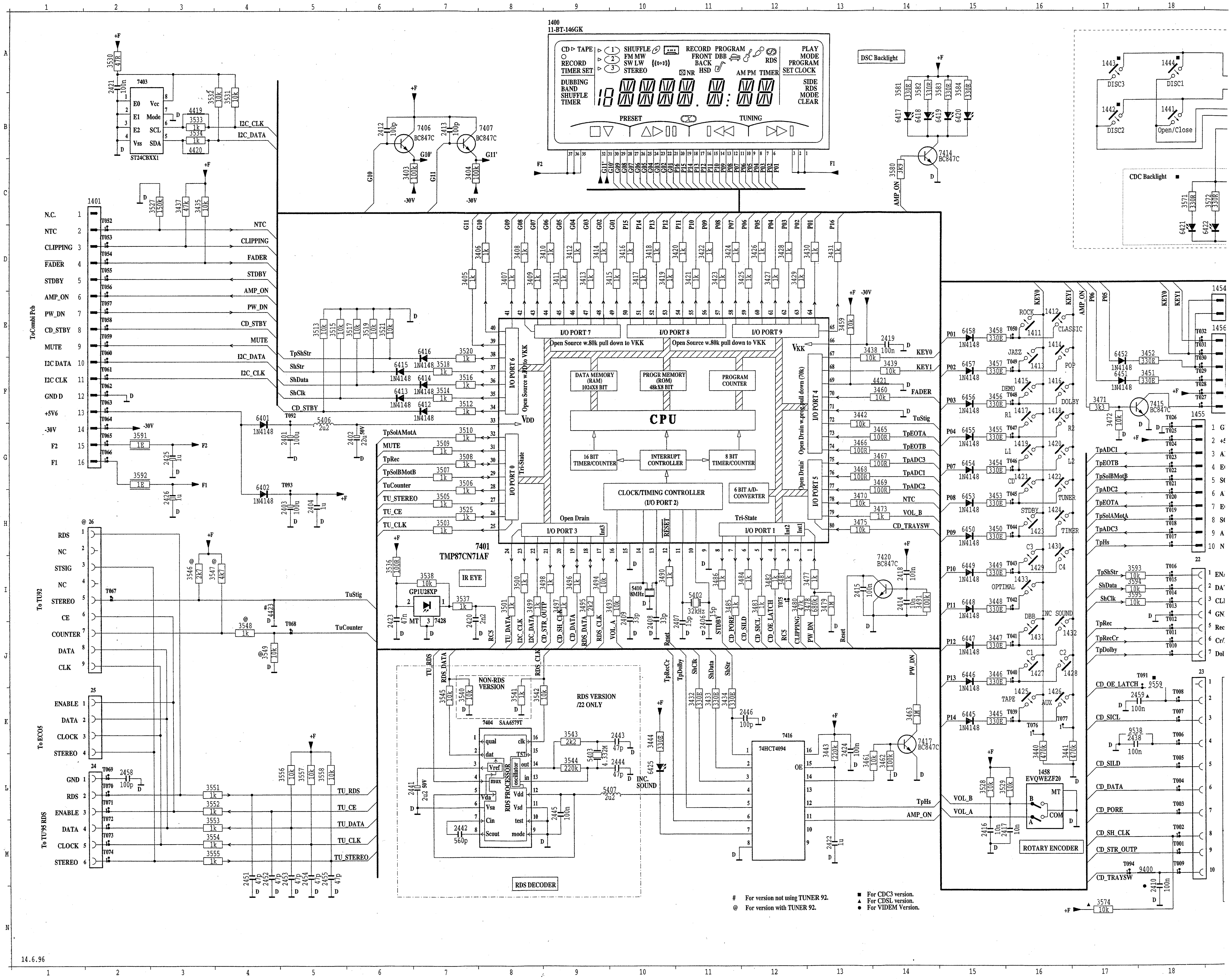
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partlis

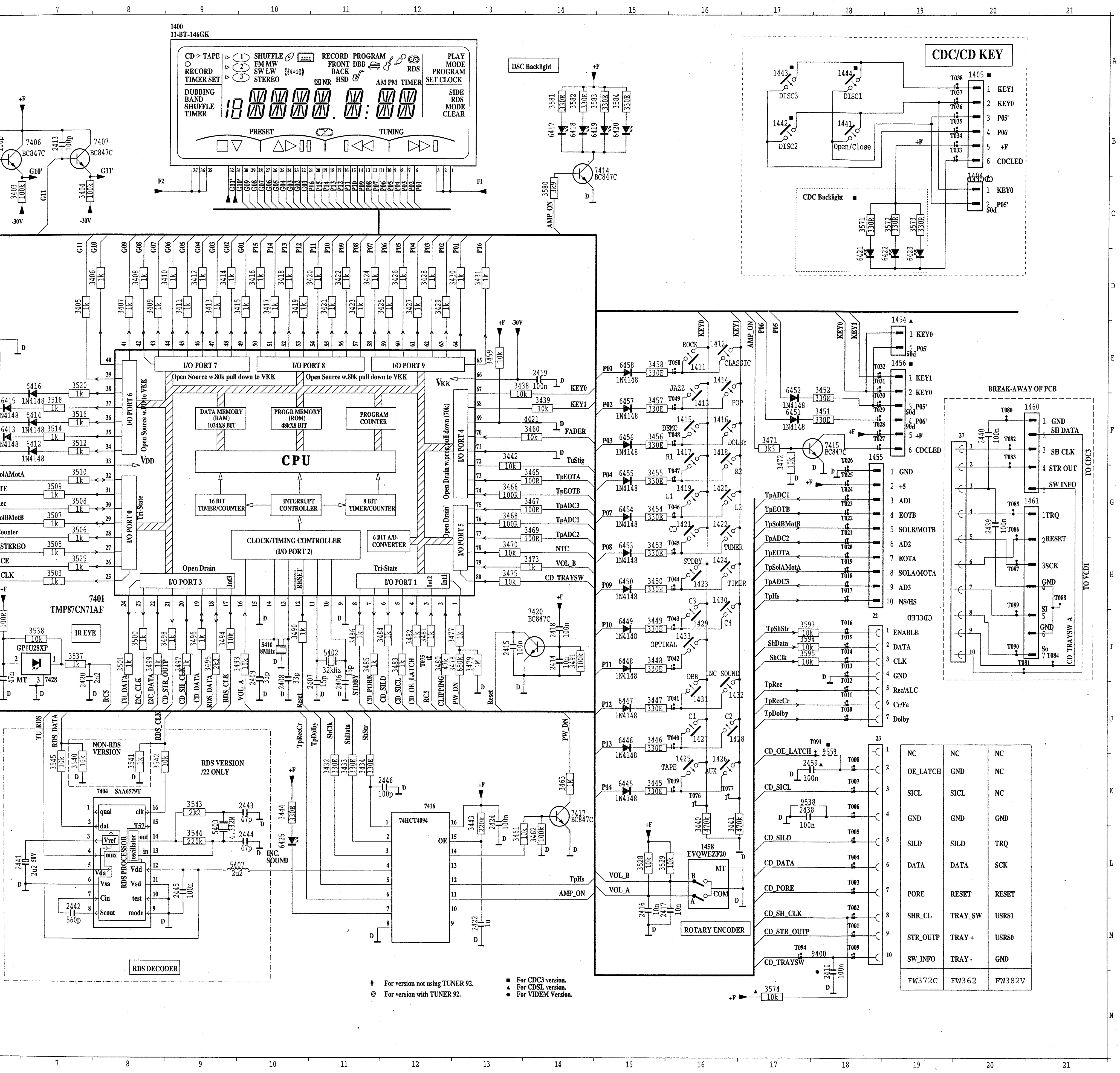
22	C	4
23	B	7
24	C	1
1400	B	3
1401	D	5
1404	A	1
1405	A	1
1411	C	7
1412	D	7
1413	C	6
1414	D	6
1415	B	6
1416	D	6
1417	B	5
1418	B	5
1419	B	2
1420	B	2
1421	D	2
1422	D	2
1423	D	1
1424	B	1
1425	D	3
1426	D	3
1427	C	2
1428	C	3
1429	C	4
1430	C	4
1431	D	5
1432	D	4
1433	D	5
1441	A	7
1442	A	6
1443	A	7
1444	A	6
1454	A	1
1455	D	3
1456	A	1
1458	B	7
1460	D	3
1461	D	2
2401	C	4
2402	C	5
2403	C	2
2415	C	6
2425	A	1
2426	A	5
2438	B	7
2439	D	2
2440	D	3
2441	C	2
2453	C	1
2454	B	1
2459	B	7
3403	B	4
3404	B	4
3437	C	7
3445	B	2
3446	C	3
3447	C	3
3448	C	3
3450	B	3
3451	B	3
3452	B	3
3453	B	3
3454	B	3
3479	D	5
3513	D	5
3527	D	6
3542	D	3
3545	D	3
3580	D	6
3591	B	1
3592	A	5
3594	C	4
3595	C	3
5402	C	6
5403	C	2
5406	C	5
5407	C	2
5410	C	6
6401	D	4
6402	C	3
6412	C	5
6413	B	3
6414	B	3
6415	B	3
6416	C	4
6417	C	6
6418	C	6
6419	C	7
6420	C	7
6421	A	6
6422	A	6
6423	A	7
6425	D	4
6445	B	3
6446	B	3
6447	B	3
6448	B	4
6449	B	4
6450	B	3
6451	B	3
6452	B	3
6453	B	3
6454	B	3
6455	B	5
6456	B	5
6457	B	5
6458	B	5
7403	C	2
7428	C	1
9400	B	7
9401	D	4
9402	D	4
9403	C	4
9404	D	6
9405	C	6
9406	C	7
9407	C	6
9408	C	6
9409	D	6
9410	D	6
9411	B	1
9412	D	5
9413	C	5
9415	B	5
9416	B	5
9417	D	5
9418	D	5
9419	C	7
9420	B	6
9421	B	6
9422	B	3
9424	B	7
9425	B	4
9426	D	5
9428	C	4
9430	B	4
9431	B	4
9432	D	6
9433	B	2
9434	B	1
9435	D	4
9436	C	3
9437	D	4
9438	D	5
9439	B	5
9440	B	4
9441	B	3
9442	C	2
9443	B	6
9444	B	6
9445	B	6
9446	B	6
9447	B	6
9448	B	6
9449	B	6
9450	B	7
9451	D	6
9452	D	6
9453	D	6
9454	D	6
9455	B	7
9456	C	7
9457	C	6
9458	C	7
9459	B	6
9460	C	2
9461	B	2
9462	B	2
9463	B	2
9464	B	2
9465	B	2
9466	B	2
9467	C	4
9468	C	3
9469	C	3
9470	C	3
9471	C	3
9472	C	3
9473	C	3
9474	C	2
9475	C	2
9476	C	2
9477	C	2
9478	B	2
9479	B	2
9480	C	3
9481	C	1
9482	C	3
9483	B	1
9484	B	1
9485	C	2
9486	B	2
9487	B	1
9488	C	2
9489	B	1
9490	C	1
9491	C	1
9492	B	5
9493	B	7
9494	B	7
9495	C	1
9496	C	1
9538	B	7
9539	D	6
9559	B	7

COMPONENT LAYOUT COMPONENT SIDE


1
2
3
4
5
6
7
A
B
C
D
fw372/fr1panel-p2-960508-1 mpck
3139 113 33292
fw372/fr1-p2-960508-1
3139 113 33292
DISC1
DISC2
DISC3
OPEN/CLOSE
DEMO
R1
R2
TIMER
L1
L2
C2
C3
C4
JAZZ
ROCK
CLASSIC
POP
OPTIMAL
STDBY
CD
TUNER
TAPE
AUX
INC SOUND
3139 113 33292
fw372/fr1-p2-960508-1
3139 113 3329.2
fw372/fr1-p2-960508-1
flow direction

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partlist.


1400
11-BT-146GK
7401
TMP87CN71AF
CPU
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
Open Source w.80k pull down to VKK
Open Drain
Tri-State
7403
ST24CBXX1
1401
ToCombi Pcb
N.C.
NTC
CLIPPING
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
F1
To TU92
RDS
NC
STSIG
STEREO
CE
COUNTER
DATA
CLK
To ECO5
ENABLE
DATA
CLOCK
STEREO
To TU95 RDS
GND
RDS
ENABLE
DATA
CLOCK
STEREO
IR EYE
GP1U28XP
7428
7404 SAA6579T
RDS PROCESSOR
NON-RDS VERSION
RDS VERSION /22 ONLY
RDS DECODER
7416
74HCT4094
DSC Backlight
CDC Backlight
7414 BC847C
7406 BC847C
7407 BC847C
7415 BC847C
7417 BC847C
7420 BC847C
1458 EVQWEZF20
ROTARY ENCODER
DISC3
DISC1
DISC2
Open/Close
ROCK
CLASSIC
JAZZ
POP
DEMO
DOLBY
R1
R2
L1
L2
CD
TUNER
STDBY
TIMER
C3
C4
OPTIMAL
DBB
INC SOUND
C1
C2
TAPE
AUX
KEY0
KEY1
FADER
TuStig
TpEOTA
TpEOTB
TpADC3
TpADC1
TpADC2
NTC
VOL_B
CD_TRAYSW
TpShStr
ShStr
ShData
ShClk
CD_STBY
TpSolAMotA
TpRec
TpSolBMotB
TuCounter
TU_STEREO
TU_CE
TU_CLK
TU_RDS
TU_DATA
CD_OE_LATCH
CD_SICL
CD_SILD
CD_DATA
CD_PORE
CD_SH_CLK
CD_STR_OUTP
CD_TRAYSW
TpRecCr
TpDolby
TpHs
AMP_ON
VOL_A
PW_DN
# For version not using TUNER 92.
@ For version with TUNER 92.
■ For CDC3 version.
▲ For CDSL version.
● For VIDEM Version.
14.6.96


1400
11-BT-146GK
CD ▷ TAPE
RECORD
TIMER SET
SHUFFLE
FM MW
SW LW
STEREO
RECORD PROGRAM
FRONT DBB
BACK
HSD
NR
AM PM TIMER
RDS
PLAY
MODE
PROGRAM
SET CLOCK
DUBBING
BAND
SHUFFLE
TIMER
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
DSC Backlight
CDC/CD KEY
DISC3
DISC1
DISC2
Open/Close
KEY1
KEY0
P05'
P06'
+F
CDCLED
CDC Backlight
7401
TMP87CN71AF
I/O PORT 7
I/O PORT 8
I/O PORT 9
I/O PORT 6
I/O PORT 0
I/O PORT 4
I/O PORT 5
I/O PORT 3
I/O PORT 1
Open Source w.80k pull down to VKK
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Drain
Tri-State
IR EYE
GP1U28XP
BREAK-AWAY OF PCB
TO CDC3
TO VCD1
ROTARY ENCODER
EVQWEZF20
NON-RDS VERSION
RDS VERSION /22 ONLY
7404 SAA6579T
RDS PROCESSOR
RDS DECODER
7416
74HCT4094
INC SOUND

NC	NC	NC
OE_LATCH	GND	NC
SICL	SICL	NC
GND	GND	GND
SILD	SILD	TRQ
DATA	DATA	SCK
PORE	RESET	RESET
SHR_CL	TRAY_SW	USRS1
STR_OUTP	TRAY +	USRS0
SW_INFO	TRAY -	GND
FW372C	FW362	FW382V

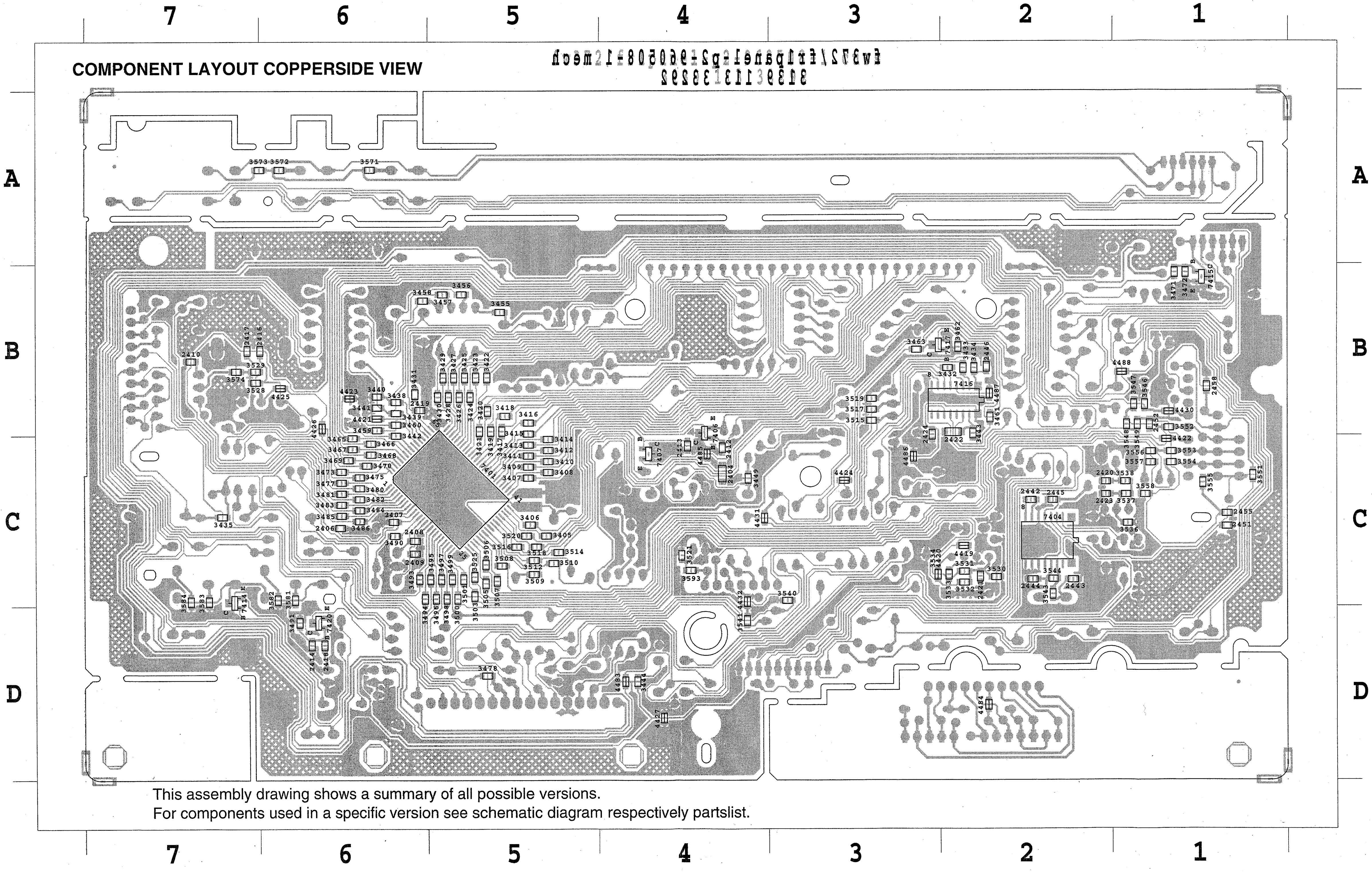
# For version not using TUNER 92.
@ For version with TUNER 92.

■ For CDC3 version.
▲ For CDSL version.
● For VIDEM Version.

1400	A 9	3478	I13
1401	C 2	3479	I13
1404	C20	3480	I12
1405	A20	3481	I12
1411	E16	3482	I12
1412	E16	3483	I12
1413	F16	3484	I12
1414	E16	3485	I11
1415	F16	3486	I11
1416	F16	3490	I10
1417	F16	3491	I14
1418	F16	3493	I10
1419	G16	3494	I 9
1420	G16	3495	I 9
1421	G16	3496	I 9
1422	G16	3497	I 9
1423	H16	3498	I 9
1424	H16	3499	I 8
1425	K16	3500	I 8
1426	K16	3501	I 8
1427	J16	3503	H 7
1428	J16	3505	H 7
1429	I16	3506	G 7
1430	H16	3507	G 7
1431	J16	3508	G 7
1432	J16	3509	G 7
1433	I16	3510	G 7
1441	B18	3512	F 7
1442	B17	3513	E 5
1443	A17	3514	F 7
1444	A18	3515	E 5
1454	E19	3516	F 7
1455	F19	3517	E 6
1456	E19	3518	F 7
1458	L16	3519	E 6
1460	F20	3520	E 7
1461	G20	3521	E 6
22	I18	3525	H 7
23	J18	3527	C 3
24	L 2	3528	L15
2401	G 5	3529	L15
2402	G 6	3530	A 2
2403	H 5	3531	B 4
2404	H 5	3532	B 3
2406	J11	3533	B 3
2407	J11	3534	B 3
2408	J10	3536	I 6
2409	I10	3537	I 7
2410	N18	3538	I 7
2412	B 6	3540	K 7
2413	B 7	3541	K 8
2414	I14	3542	K 8
2415	I13	3543	K 9
2416	M15	3544	L 9
2417	M15	3545	K 7
2418	I14	3546	I 3
2419	E14	3547	I 3
2420	I 7	3548	J 4
2421	A 2	3549	J 4
2422	M13	3551	L 3
2423	I 6	3552	L 3
2424	K13	3553	M 3
2425	G 3	3554	M 3
2426	H 3	3555	M 3
2438	K17	3556	L 4
2439	G20	3557	L 5
2440	F20	3558	L 5
2441	L 7	3571	C18
2442	M 7	3572	C19
2443	K10	3573	C19
2444	L10	3574	N17
2445	L 9	3580	C14
2446	K12	3581	A14
2451	M 4	3582	A14
2452	M 4	3583	A14
2453	M 5	3584	A15
2454	M 5	3591	G 2
2455	M 5	3592	G 2
2458	L 2	3593	I17
2459	K18	3594	I17
25	K 2	3595	I17
26	H 2	4419	B 3
27	F20	4420	B 3
3403	C 6	4421	F14
3404	C 7	4423	I 4
3405	D 7	5402	I11
3406	D 8	5403	L 9
3407	D 8	5406	F 5
3408	D 8	5407	L10
3409	D 8	5410	I10
3410	D 9	6401	F 4
3411	D 9	6402	H 4
3412	D 9	6412	F 7
3413	D 9	6413	F 6
3414	D 9	6414	F 7
3415	D10	6415	F 6
3416	D10	6416	E 7
3417	D10	6417	B14
3418	D10	6418	B14
3419	D10	6419	B14
3420	D11	6420	B15
3421	D11	6421	D18
3422	D11	6422	D19
3423	D11	6423	D19
3424	D11	6425	L10
3425	D12	6445	K15
3426	D12	6446	J15
3427	D12	6447	J15
3428	D12	6448	I15
3429	D12	6449	I15
3430	D13	6450	H15
3431	D13	6451	F17
3432	K11	6452	F17
3433	K11	6453	H15
3434	K11	6454	G15
3435	C 3	6455	G15
3437	C 3	6456	F15
3438	E13	6457	F15
3439	F14	6458	E15
3440	K16	7401	H 8
3441	K16	7403	A 2
3442	F13	7404	K 8
3443	K13	7406	B 7
3444	K10	7407	B 8
3445	K15	7414	B14
3446	J15	7415	F18
3447	J15	7416	K12
3448	I15	7417	K14
3449	I15	7420	I14
3450	H15	7428	J 7
3451	F18	9538	K17
3452	E18	9539	M18
3453	H15	9559	K18
3454	G15		
3455	G15		
3456	F15		
3457	F15		
3458	E15		
3459	E13		
3460	F14		
3461	L13		
3462	L14		
3463	K14		
3465	G14		
3466	G13		
3467	G14		
3468	G13		
3469	G14		
3470	H13		
3471	F17		
3472	F17		
3473	H14		
3475	H13		
3477	I13		

2404 C 4	2417 B 7	2444 C 2	3408 C 5	3418 B 5	3428 B 5	3440 B 6	3459 B 6	3470 C 6	3483 C 6	3497 C 5	3509 C 5	3521 C 4	3537 C 1	3551 C 1	3573 A 6	4422 C 1	4484 D 2	7415 B 1
2406 C 6	2418 D 6	2445 C 2	3409 C 5	3419 B 5	3429 B 5	3441 B 6	3460 B 6	3471 B 1	3484 C 6	3498 C 5	3510 C 5	3525 C 5	3538 C 1	3552 B 1	3574 B 7	4423 B 6	4485 C 4	7416 B 2
2407 C 6	2419 B 6	2446 B 2	3410 C 5	3420 B 5	3430 B 5	3442 C 6	3461 B 2	3472 B 1	3485 C 6	3499 C 5	3512 C 5	3528 B 7	3540 C 3	3553 C 1	3581 C 6	4424 C 3	4486 C 3	7417 B 3
2408 C 6	2420 C 2	2451 C 1	3411 C 5	3421 B 5	3431 B 6	3443 B 2	3462 B 2	3473 C 6	3486 C 6	3500 C 5	3514 C 5	3529 B 7	3541 D 4	3554 C 1	3582 C 6	4425 B 6	4487 B 2	7420 D 6
2409 C 6	2421 C 2	2452 B 1	3412 C 5	3422 B 5	3432 B 2	3444 D 4	3463 B 3	3475 C 6	3490 C 6	3501 C 5	3515 B 3	3530 C 2	3543 C 2	3555 C 1	3583 C 7	4426 B 6	4488 B 1	----
2410 B 7	2422 B 2	2455 C 1	3413 C 5	3423 B 5	3433 B 2	3449 C 4	3465 C 6	3477 C 6	3491 D 6	3503 C 5	3516 C 5	3531 C 2	3544 C 2	3556 C 1	3584 C 7	4427 D 4	7401 C 5	
2412 C 4	2423 C 2	2458 B 1	3414 C 5	3424 B 5	3434 B 2	3455 B 5	3466 C 6	3478 D 5	3493 C 6	3505 C 5	3517 B 3	3532 C 2	3546 B 1	3557 C 1	3593 C 4	4430 B 1	7404 C 2	
2413 C 4	2424 B 3	3405 C 5	3415 B 5	3425 B 5	3435 C 7	3456 B 5	3467 C 6	3480 C 6	3494 C 6	3506 C 5	3518 C 5	3533 C 2	3547 B 1	3558 C 1	4419 C 2	4431 C 4	7406 B 4	
2414 D 6	2442 C 2	3406 C 5	3416 B 5	3426 B 5	3438 B 6	3457 B 5	3468 C 6	3481 C 6	3495 C 5	3507 C 5	3519 B 3	3534 C 3	3548 B 1	3571 A 6	4420 C 3	4432 C 4	7407 C 4	
2416 B 6	2443 C 2	3407 C 5	3417 B 5	3427 B 5	3439 B 6	3458 B 6	3469 C 6	3482 C 6	3496 C 5	3508 C 5	3520 C 5	3536 C 1	3549 B 1	3572 A 6	4421 B 6	4483 D 4	7414 C 7	

COMPONENT LAYOUT COPPERSIDE VIEW



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

P1
P2
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P4
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P13
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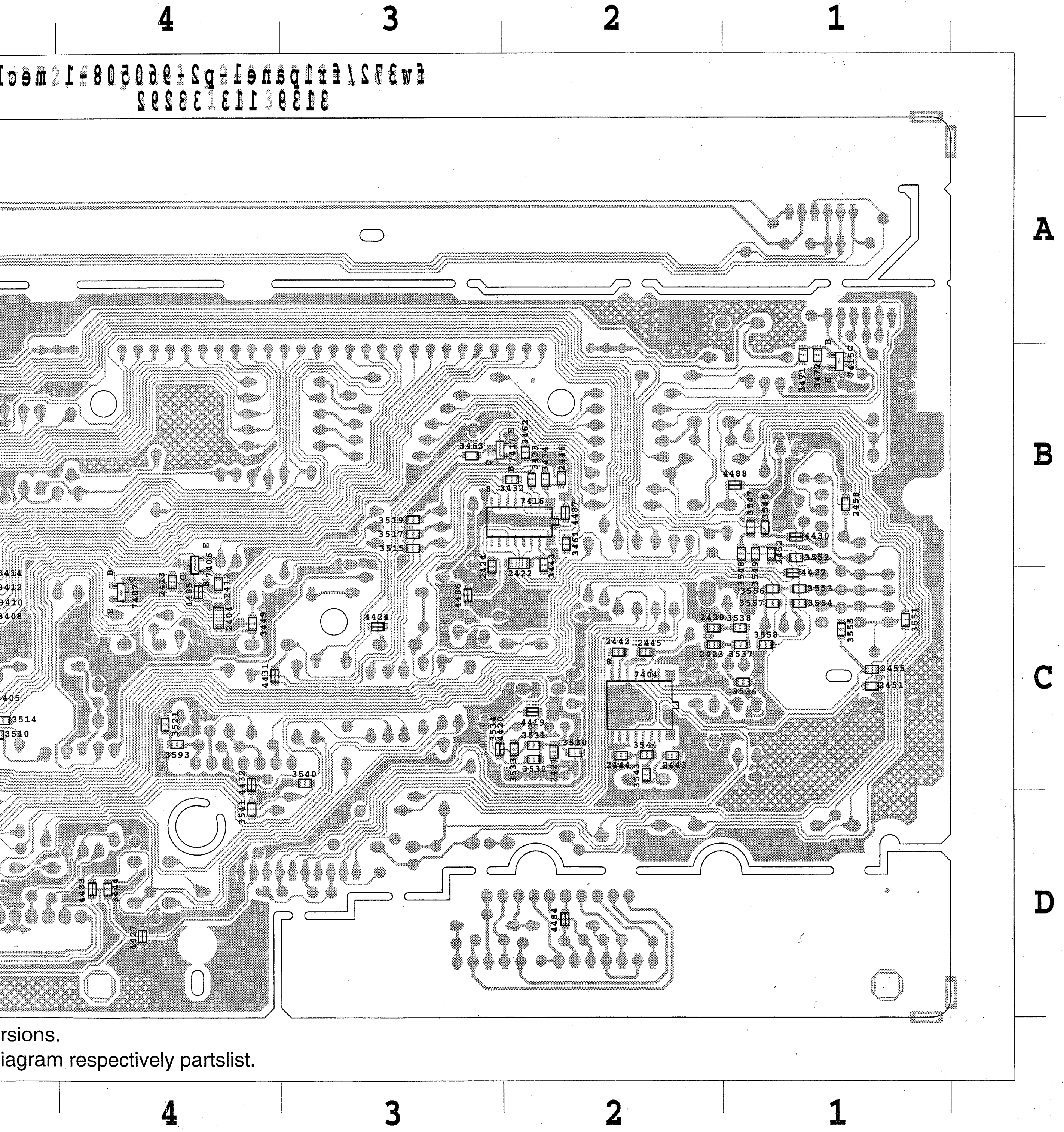
P16

3470 C 6	3483 C 6	3497 C 5	3509 C 5	3521 C 4	3537 C 1	3551 C 1	3573 A 6	4422 C 1	4484 D 2	7415 B 1
3471 B 1	3484 C 6	3498 C 5	3510 C 5	3525 C 5	3538 C 1	3552 B 1	3574 B 7	4423 B 6	4485 C 4	7416 B 2
3472 B 1	3485 C 6	3499 C 5	3512 C 5	3528 B 7	3540 C 3	3553 C 1	3581 C 6	4424 C 3	4486 C 3	7417 B 3
3473 C 6	3486 C 6	3500 C 5	3514 C 5	3529 B 7	3541 D 4	3554 C 1	3582 C 6	4425 B 6	4487 B 2	7420 D 6
3475 C 6	3490 C 6	3501 C 5	3515 B 3	3530 C 2	3543 C 2	3555 C 1	3583 C 7	4426 B 6	4488 B 1	----
3477 C 6	3491 D 6	3503 C 5	3516 C 5	3531 C 2	3544 C 2	3556 C 1	3584 C 7	4427 D 4	7401 C 5	
3478 D 5	3493 C 6	3505 C 5	3517 B 3	3532 C 2	3546 B 1	3557 C 1	3593 C 4	4430 B 1	7404 C 2	
3480 C 6	3494 C 6	3506 C 5	3518 C 5	3533 C 2	3547 B 1	3558 C 1	4419 C 2	4431 C 4	7406 B 4	
3481 C 6	3495 C 5	3507 C 5	3519 B 3	3534 C 3	3548 B 1	3571 A 6	4420 C 3	4432 C 4	7407 C 4	
3482 C 6	3496 C 5	3508 C 5	3520 C 5	3536 C 1	3549 B 1	3572 A 6	4421 B 6	4483 D 4	7414 C 7	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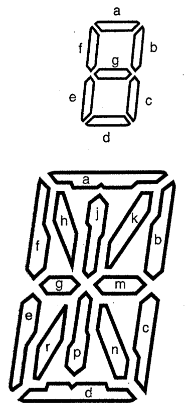
rsions.
iagram respectively partslist.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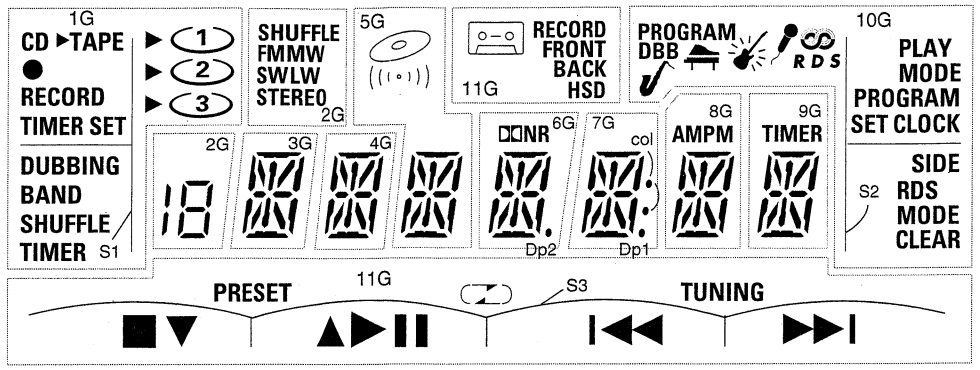

1G
CD ▶TAPE
●
RECORD
TIMER SET
DUBBING
BAND
SHUFFLE
TIMER
S1
1
2
3
SHUFFLE
FMMW
SWLW
STEREO
2G
5G
RECORD
FRONT
BACK
HSD
11G
PROGRAM
DBB
RDS
10G
PLAY
MODE
PROGRAM
SET CLOCK
3G
4G
DDNR
6G
7G
col
8G
AMPM
9G
TIMER
SIDE
S2
RDS
MODE
CLEAR
Dp2
Dp1
PRESET
11G
S3
TUNING

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G
P1	CD ▶TAPE	a	a	a	a	a	a	a	a	PROGRAM	FRONT
P2	● RECORD	b	b	b	b	b	b	b	b	RDS	BACK
P3	TIMER SET	f	f	f	f	f	f	f	f	🎤	RECORD
P4	DUBBING	¦	h	h	h	h	h	h	h	🎷	HSD
P5	BAND	FM	k	k	k	k	k	k	k	🎸	PRESET TUNING
P6	SHUFFLE	SHUFFLE	j , p	j , p	j , p	j , p	j , p	j , p	j , p	✳	⇄
P7	TIMER	g	g	g	g	g	g	g	g	🎹	(
P8	1 2 3	MW	m	m	m	m	m	m	m	PLAY MODE	)
P9	◯	e	e	e	e	e	e	e	e	PROGRAM	❙ ❙
P10	◯	c	c	c	c	c	c	c	c	RDS MODE	◀◀ ▶▶
P11	◯	SW	n	n	n	n	n	n	n	SIDE	▼ ▲
P12		LW	r	r	r	r	r	r	r	CLEAR	❚❚
P13	▶	d	d	d	d	d	d	d	d	SET CLOCK	🖭
P14	▶	STEREO	-	-	💿	Dp2	Dp1	AM	TIMER	DBB	■
P15	▶	-	-	-	((•))	DDNR	col	PM	-	-	▶
P16	S1	-	-	-	-	-	-	-	-	S2	S3

MISCELLANEOUS

17	4822 256 10206	Holder Led
18	4822 466 10972	Light Guide CDC
1400	4822 135 00033	Display Fluorescent
1401	4822 267 51238	Connector
1411	4822 276 13114	Tact switch
1412	4822 276 13114	Tact switch
1413	4822 276 13114	Tact switch
1414	4822 276 13114	Tact switch
1415	4822 276 13114	Tact switch
1416	4822 276 13114	Tact switch
1417	4822 276 13114	Tact switch
1418	4822 276 13114	Tact switch
1419	4822 276 13114	Tact switch
1420	4822 276 13114	Tact switch
1421	4822 276 13114	Tact switch
1422	4822 276 13114	Tact switch
1423	4822 276 13114	Tact switch
1424	4822 276 13114	Tact switch
1425	4822 276 13114	Tact switch
1426	4822 276 13114	Tact switch
1427	4822 276 13114	Tact switch
1428	4822 276 13114	Tact switch
1429	4822 276 13114	Tact switch
1430	4822 276 13114	Tact switch
1431	4822 276 13114	Tact switch
1432	4822 276 13114	Tact switch
1433	4822 276 13114	Tact switch
1441	4822 276 13114	Tact switch
1442	4822 276 13114	Tact switch (FW372C)
1443	4822 276 13114	Tact switch (FW372C)
1444	4822 276 13114	Tact switch
1458	4822 101 90254	Variable resistors

CAPACITORS

2401	4822 124 41584	100µF 20% 10V
2402	4822 124 41596	22µF 20% 50V
2403	4822 124 41584	100µF 20% 10V
2404	4822 126 11692	1µF
2406	5322 122 32481	15PF 5% 50V
2407	5322 122 32481	15PF 5% 50V
2408	5322 122 32659	33PF 5% 50V
2409	5322 122 32659	33PF 5% 50V
2412	5322 122 32531	100PF 5% 50V
2413	5322 122 32531	100PF 5% 50V
2414	4822 122 33177	10nF 20% 50V
2415	4822 126 12882	100nF+80-20% 50V
2416	4822 122 33177	10nF 20% 50V
2417	4822 122 33177	10nF 20% 50V
2418	4822 126 13838	100nF 20% 50V

CAPACITORS

2419	4822 126 13838	100nF 20% 50V
2420	4822 122 33175	2.2nF 20% 50V
2421	4822 126 13838	100nF 20% 50V
2422	4822 126 11692	1µF 20% 16V
2423	4822 122 33797	47nF 20% 50V
2424	4822 126 13838	100nF 20% 50V
2425	4822 124 40242	1µF 20% 63V
2426	4822 124 40242	1µF 20% 63V
2438	4822 126 12882	100nF+80-20% 50V
2441	4822 124 41576	2.2µF 20% 50V
2442	4822 122 33173	560PF 10% 50V
2443	5322 122 32452	47PF 5% 63V
2444	5322 122 32452	47PF 5% 63V
2445	4822 126 13838	100nF 20% 50V
2446	5322 122 32531	100PF 5% 50V
2451	5322 122 32452	47PF 5% 63V
2452	5322 122 32452	47PF 5% 63V
2453	4822 122 33848	47PF 5% 50V
2454	4822 122 33848	47PF 5% 50V
2455	5322 122 32452	47PF 5% 63V
2458	5322 122 32531	100PF 5% 50V

RESISTORS

3403	4822 116 52234	100K 5% 0.5W
3404	4822 116 52234	100K 5% 0.5W
3405	4822 051 10102	1k 2% 0.25W
3406	4822 051 10102	1k 2% 0.25W
3407	4822 051 10102	1k 2% 0.25W
3408	4822 051 10102	1k 2% 0.25W
3409	4822 051 10102	1k 2% 0.25W
3410	4822 051 10102	1k 2% 0.25W
3411	4822 051 10102	1k 2% 0.25W
3412	4822 051 10102	1k 2% 0.25W
3413	4822 051 10102	1k 2% 0.25W
3414	4822 051 10102	1k 2% 0.25W
3415	4822 051 10102	1k 2% 0.25W
3416	4822 051 10102	1k 2% 0.25W
3417	4822 051 10102	1k 2% 0.25W
3418	4822 051 10102	1k 2% 0.25W
3419	4822 051 10102	1k 2% 0.25W
3420	4822 051 10102	1k 2% 0.25W
3421	4822 051 10102	1k 2% 0.25W
3422	4822 051 10102	1k 2% 0.25W
3423	4822 051 10102	1k 2% 0.25W
3424	4822 051 10102	1k 2% 0.25W
3425	4822 051 10102	1k 2% 0.25W
3426	4822 051 10102	1k 2% 0.25W
3427	4822 051 10102	1k 2% 0.25W

RESISTORS

3428	4822 051 10102	1k 2% 0.25W
3429	4822 051 10102	1k 2% 0.25W
3430	4822 051 10102	1k 2% 0.25W
3431	4822 051 10102	1k 2% 0.25W
3432	4822 051 20331	330Ω 5% 0.1W
3433	4822 051 20331	330Ω 5% 0.1W
3434	4822 051 20331	330Ω 5% 0.1W
3435	4822 051 20103	10k 5% 0.1W
3437	4822 116 52284	47K 5% 0.5W
3438	4822 051 20103	10k 5% 0.1W
3439	4822 051 20103	10k 5% 0.1W
3440	4822 051 20474	470k 5% 0.1W
3441	4822 051 20474	470k 5% 0.1W
3442	4822 051 20103	10k 5% 0.1W
3443	4822 051 20224	220k 5% 0.1W
3444	4822 051 20331	330Ω 5% 0.1W
3445	4822 116 52219	330Ω 5% 0.5W
3446	4822 116 52219	330Ω 5% 0.5W
3447	4822 116 52219	330Ω 5% 0.5W
3448	4822 116 52219	330Ω 5% 0.5W
3449	4822 051 20331	330Ω 5% 0.1W
3450	4822 116 52219	330Ω 5% 0.5W
3451	4822 116 52219	330Ω 5% 0.5W
3452	4822 116 52219	330Ω 5% 0.5W
3453	4822 116 52219	330Ω 5% 0.5W
3454	4822 116 52219	330Ω 5% 0.5W
3455	4822 051 20331	330Ω 5% 0.1W
3456	4822 051 20331	330Ω 5% 0.1W
3457	4822 051 20331	330Ω 5% 0.1W
3458	4822 051 20331	330Ω 5% 0.1W
3459	4822 051 20103	10k 5% 0.1W
3460	4822 051 20103	10k 5% 0.1W
3461	4822 051 20103	10k 5% 0.1W
3462	4822 051 20104	100k 5% 0.1W
3463	4822 051 20105	1M 5% 0.1W
3465	4822 051 20101	100Ω 5% 0.1W
3466	4822 051 20101	100Ω 5% 0.1W
3467	4822 051 20101	100Ω 5% 0.1W
3468	4822 051 20101	100Ω 5% 0.1W
3469	4822 051 20101	100Ω 5% 0.1W
3470	4822 051 20103	10k 5% 0.1W
3471	4822 051 20332	3k3 5% 0.1W
3472	4822 051 20103	10k 5% 0.1W
3473	4822 051 10102	1k 2% 0.25W
3475	4822 051 20103	10k 5% 0.1W
3477	4822 051 10102	1k 2% 0.25W
3478	4822 051 20684	680k 5% 0.1W
3479	4822 116 52235	1M 5% 0.5W
3480	4822 051 20473	47k 5% 0.1W
3481	4822 051 10102	1k 2% 0.25W

RESISTORS

3482	4822 051 10102	1k 2% 0.25W
3483	4822 051 10102	1k 2% 0.25W
3484	4822 051 10102	1k 2% 0.25W
3485	4822 051 10102	1k 2% 0.25W
3486	4822 051 10102	1k 2% 0.25W
3490	4822 051 10102	1k 2% 0.25W
3491	4822 051 20104	100k 5% 0.1W
3493	4822 051 20103	10k 5% 0.1W
3494	4822 051 20103	10k 5% 0.1W
3495	4822 117 11449	2K2 1% 0.1W
3496	4822 051 10102	1k 2% 0.25W
3497	4822 051 10102	1k 2% 0.25W
3498	4822 051 10102	1k 2% 0.25W
3499	4822 051 10102	1k 2% 0.25W
3500	4822 051 10102	1k 2% 0.25W
3501	4822 051 10102	1k 2% 0.25W
3503	4822 051 10102	1k 2% 0.25W
3505	4822 051 10102	1k 2% 0.25W
3506	4822 051 10102	1k 2% 0.25W
3507	4822 051 10102	1k 2% 0.25W
3508	4822 051 10102	1k 2% 0.25W
3509	4822 051 10102	1k 2% 0.25W
3510	4822 051 10102	1k 2% 0.25W
3512	4822 051 10102	1k 2% 0.25W
3513	4822 116 83864	10k 5% 0.5W
3514	4822 051 10102	1k 2% 0.25W
3515	4822 051 20103	10k 5% 0.1W
3516	4822 051 10102	1k 2% 0.25W
3517	4822 051 20103	10k 5% 0.1W
3518	4822 051 10102	1k 2% 0.25W
3519	4822 051 20103	10k 5% 0.1W
3520	4822 051 10102	1k 2% 0.25W
3521	4822 051 20103	10k 5% 0.1W
3525	4822 051 10102	1k 2% 0.25W
3527	4822 116 52245	150K 5% 0.5W
3528	4822 051 20103	10k 5% 0.1W
3529	4822 051 20103	10k 5% 0.1W
3530	4822 051 20479	47Ω 5% 0.1W
3531	4822 051 20103	10k 5% 0.1W
3532	4822 051 20103	10k 5% 0.1W
3533	4822 051 10102	1k 2% 0.25W
3534	4822 051 10102	1k 2% 0.25W
3536	4822 051 20101	100Ω 5% 0.1W
3537	4822 051 10102	1k 2% 0.25W
3538	4822 051 20103	10k 5% 0.1W
3540	4822 051 20103	10k 5% 0.1W (For -/21 & -/37)
3541	4822 051 10102	1k 2% 0.25W (For -/21 & -/37)
3542	4822 116 83864	10k 5% 0.5W (For -/22 & -/25)
3543	4822 117 11449	2k2 1% 0.1W (For -/22 & -/25)
3544	4822 051 20224	220k 5% 0.1W (For -/22 & -/25)

RESISTORS

3545	4822 116 8
3551	4822 051 1
3552	4822 051 1
3553	4822 051 1
3554	4822 051 1
3555	4822 051 1
3556	4822 051 2
3557	4822 051 2
3558	4822 051 2
3571	4822 051 2
3572	4822 051 2
3573	4822 051 2
3574	4822 051 2
3580	4822 116 5
3581	4822 051 2
3582	4822 051 2
3583	4822 051 2
3584	4822 051 2
3591	4822 052 1
3592	4822 052 1
3593	4822 051 2
3594	4822 116 8
3595	4822 116 8

CHIP JUMPER

4421	4822 051
4422	4822 051
4423	4822 051
4424	4822 051
4425	4822 051
4426	4822 051
4427	4822 051
4430	4822 051
4431	4822 051
4432	4822 051
4483	4822 051
4485	4822 051
4486	4822 051
4487	4822 051
4488	4822 051

COIL & CRYSTAL

5402	4822 242
5403	4822 242
5406	4822 156
5407	4822 156
5410	5322 242

RESISTORS

3428	4822 051 10102	1k 2% 0.25W
3429	4822 051 10102	1k 2% 0.25W
3430	4822 051 10102	1k 2% 0.25W
3431	4822 051 10102	1k 2% 0.25W
3432	4822 051 20331	330Ω 5% 0.1W
3433	4822 051 20331	330Ω 5% 0.1W
3434	4822 051 20331	330Ω 5% 0.1W
3435	4822 051 20103	10k 5% 0.1W
3437	4822 116 52284	47K 5% 0.5W
3438	4822 051 20103	10k 5% 0.1W
3439	4822 051 20103	10k 5% 0.1W
3440	4822 051 20474	470k 5% 0.1W
3441	4822 051 20474	470k 5% 0.1W
3442	4822 051 20103	10k 5% 0.1W
3443	4822 051 20224	220k 5% 0.1W
3444	4822 051 20331	330Ω 5% 0.1W
3445	4822 116 52219	330Ω 5% 0.5W
3446	4822 116 52219	330Ω 5% 0.5W
3447	4822 116 52219	330Ω 5% 0.5W
3448	4822 116 52219	330Ω 5% 0.5W
3449	4822 051 20331	330Ω 5% 0.1W
3450	4822 116 52219	330Ω 5% 0.5W
3451	4822 116 52219	330Ω 5% 0.5W
3452	4822 116 52219	330Ω 5% 0.5W
3453	4822 116 52219	330Ω 5% 0.5W
3454	4822 116 52219	330Ω 5% 0.5W
3455	4822 051 20331	330Ω 5% 0.1W
3456	4822 051 20331	330Ω 5% 0.1W
3457	4822 051 20331	330Ω 5% 0.1W
3458	4822 051 20331	330Ω 5% 0.1W
3459	4822 051 20103	10k 5% 0.1W
3460	4822 051 20103	10k 5% 0.1W
3461	4822 051 20103	10k 5% 0.1W
3462	4822 051 20104	100k 5% 0.1W
3463	4822 051 20105	1M 5% 0.1W
3465	4822 051 20101	100Ω 5% 0.1W
3466	4822 051 20101	100Ω 5% 0.1W
3467	4822 051 20101	100Ω 5% 0.1W
3468	4822 051 20101	100Ω 5% 0.1W
3469	4822 051 20101	100Ω 5% 0.1W
3470	4822 051 20103	10k 5% 0.1W
3471	4822 051 20332	3k3 5% 0.1W
3472	4822 051 20103	10k 5% 0.1W
3473	4822 051 10102	1k 2% 0.25W
3475	4822 051 20103	10k 5% 0.1W
3477	4822 051 10102	1k 2% 0.25W
3478	4822 051 20684	680k 5% 0.1W
3479	4822 116 52235	1M 5% 0.5W
3480	4822 051 20473	47k 5% 0.1W
3481	4822 051 10102	1k 2% 0.25W

RESISTORS

3482	4822 051 10102	1k 2% 0.25W
3483	4822 051 10102	1k 2% 0.25W
3484	4822 051 10102	1k 2% 0.25W
3485	4822 051 10102	1k 2% 0.25W
3486	4822 051 10102	1k 2% 0.25W
3490	4822 051 10102	1k 2% 0.25W
3491	4822 051 20104	100k 5% 0.1W
3493	4822 051 20103	10k 5% 0.1W
3494	4822 051 20103	10k 5% 0.1W
3495	4822 117 11449	2K2 1% 0.1W
3496	4822 051 10102	1k 2% 0.25W
3497	4822 051 10102	1k 2% 0.25W
3498	4822 051 10102	1k 2% 0.25W
3499	4822 051 10102	1k 2% 0.25W
3500	4822 051 10102	1k 2% 0.25W
3501	4822 051 10102	1k 2% 0.25W
3503	4822 051 10102	1k 2% 0.25W
3505	4822 051 10102	1k 2% 0.25W
3506	4822 051 10102	1k 2% 0.25W
3507	4822 051 10102	1k 2% 0.25W
3508	4822 051 10102	1k 2% 0.25W
3509	4822 051 10102	1k 2% 0.25W
3510	4822 051 10102	1k 2% 0.25W
3512	4822 051 10102	1k 2% 0.25W
3513	4822 116 83864	10k 5% 0.5W
3514	4822 051 10102	1k 2% 0.25W
3515	4822 051 20103	10k 5% 0.1W
3516	4822 051 10102	1k 2% 0.25W
3517	4822 051 20103	10k 5% 0.1W
3518	4822 051 10102	1k 2% 0.25W
3519	4822 051 20103	10k 5% 0.1W
3520	4822 051 10102	1k 2% 0.25W
3521	4822 051 20103	10k 5% 0.1W
3525	4822 051 10102	1k 2% 0.25W
3527	4822 116 52245	150K 5% 0.5W
3528	4822 051 20103	10k 5% 0.1W
3529	4822 051 20103	10k 5% 0.1W
3530	4822 051 20479	47Ω 5% 0.1W
3531	4822 051 20103	10k 5% 0.1W
3532	4822 051 20103	10k 5% 0.1W
3533	4822 051 10102	1k 2% 0.25W
3534	4822 051 10102	1k 2% 0.25W
3536	4822 051 20101	100Ω 5% 0.1W
3537	4822 051 10102	1k 2% 0.25W
3538	4822 051 20103	10k 5% 0.1W
3540	4822 051 20103	10k 5% 0.1W (For -/21 & -/37)
3541	4822 051 10102	1k 2% 0.25W (For -/21 & -/37)
3542	4822 116 83864	10k 5% 0.5W (For -/22 & -/25)
3543	4822 117 11449	2k2 1% 0.1W (For -/22 & -/25)
3544	4822 051 20224	220k 5% 0.1W (For -/22 & -/25)

RESISTORS

3545	4822 116 83864	10K 5% 0.5W (For -/22 & -/25)
3551	4822 051 10102	1k 2% 0.25W
3552	4822 051 10102	1k 2% 0.25W
3553	4822 051 10102	1k 2% 0.25W
3554	4822 051 10102	1k 2% 0.25W
3555	4822 051 10102	1k 2% 0.25W
3556	4822 051 20103	10k 5% 0.1W
3557	4822 051 20103	10k 5% 0.1W
3558	4822 051 20103	10k 5% 0.1W
3571	4822 051 20331	330Ω 5% 0.1W (FW372C)
3572	4822 051 20331	330Ω 5% 0.1W (FW372C)
3573	4822 051 20331	330Ω 5% 0.1W (FW372C)
3574	4822 051 20103	10k 5% 0.1W
3580	4822 116 52276	3K9 5% 0.5W
3581	4822 051 20331	330Ω 5% 0.1W
3582	4822 051 20331	330Ω 5% 0.1W
3583	4822 051 20331	330Ω 5% 0.1W
3584	4822 051 20331	330Ω 5% 0.1W
3591	4822 052 10108	1Ω 5% 0.33W
3592	4822 052 10108	1Ω 5% 0.33W
3593	4822 051 20103	10k 5% 0.1W
3594	4822 116 83864	10K 5% 0.5W
3595	4822 116 83864	10K 5% 0.5W

CHIP JUMPER

4421	4822 051 20008	0Ω Jumper
4422	4822 051 20008	0Ω Jumper
4423	4822 051 20008	0Ω Jumper
4424	4822 051 20008	0Ω Jumper
4425	4822 051 20008	0Ω Jumper
4426	4822 051 20008	0Ω Jumper
4427	4822 051 20008	0Ω Jumper (FW372C/21/37)
4430	4822 051 20008	0Ω Jumper
4431	4822 051 20008	0Ω Jumper
4432	4822 051 20008	0Ω Jumper
4483	4822 051 20008	0Ω Jumper
4485	4822 051 20008	0Ω Jumper
4486	4822 051 20008	0Ω Jumper
4487	4822 051 20008	0Ω Jumper
4488	4822 051 20008	0Ω Jumper

COIL & CRYSTAL

5402	4822 242 70938	Crystal (32.768KHZ)
5403	4822 242 72195	Crystal 8MHz
5406	4822 156 21721	Coil 2.2µH 10%
5407	4822 156 21721	Coil 2.2µH 10%
5410	5322 242 73697	Filter 8MHz

DIODE

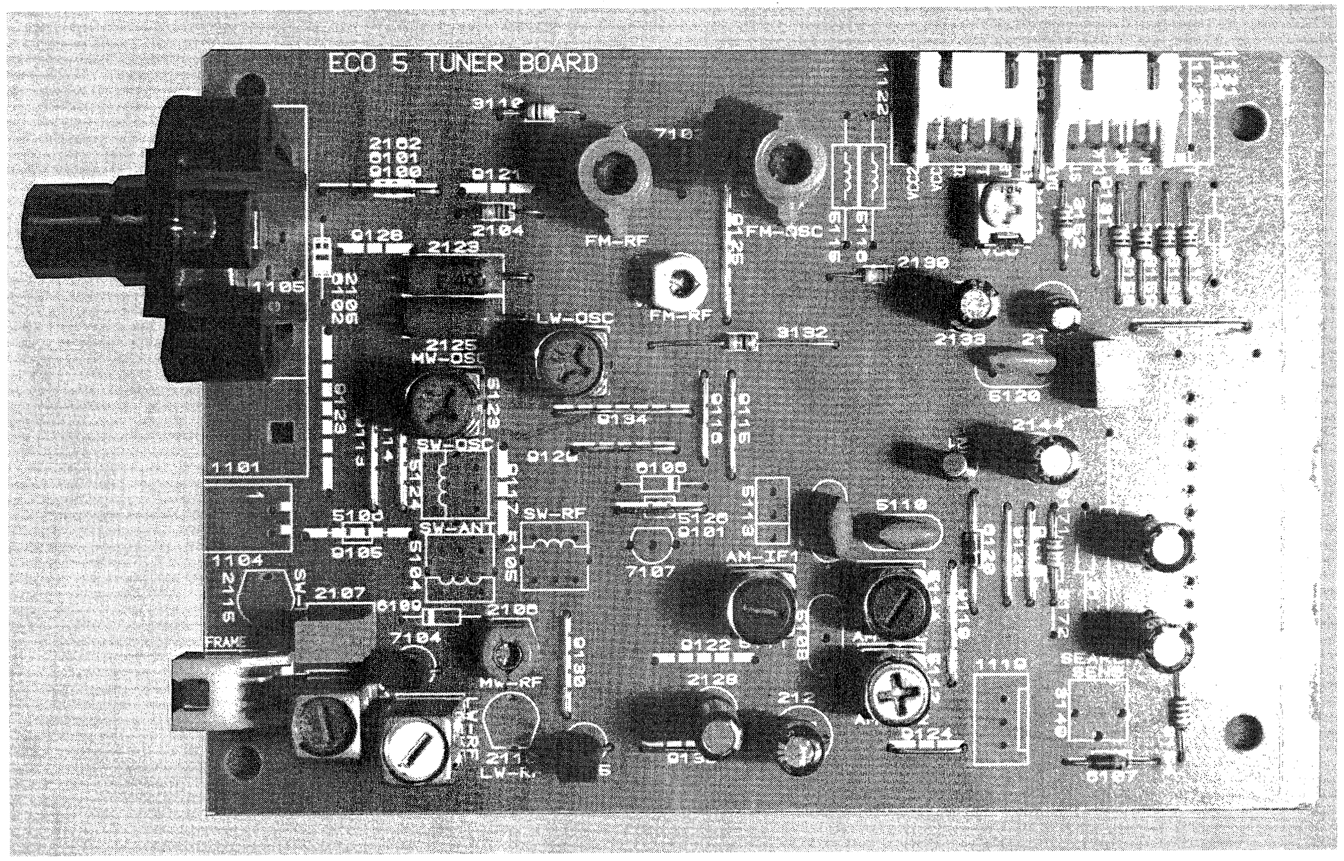
6401	4822 130 30621	1N4148
6402	4822 130 30621	1N4148
6412	4822 130 30621	1N4148
6413	4822 130 30621	1N4148
6414	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148
6417	4822 130 82978	LTL-16KGE
6418	4822 130 82978	LTL-16KGE
6419	4822 130 82978	LTL-16KGE
6420	4822 130 82978	LTL-16KGE
6421	4822 130 82978	LTL-16KGE
6422	4822 130 82978	LTL-16KGE
6423	4822 130 82978	LTL-16KGE
6425	4822 130 82978	LTL-16KGE
6445	4822 130 30621	1N4148
6446	4822 130 30621	1N4148
6447	4822 130 30621	1N4148
6448	4822 130 30621	1N4148
6449	4822 130 30621	1N4148
6450	4822 130 30621	1N4148
6451	4822 130 30621	1N4148
6452	4822 130 30621	1N4148
6453	4822 130 30621	1N4148
6454	4822 130 30621	1N4148
6455	4822 130 30621	1N4148
6456	4822 130 30621	1N4148
6457	4822 130 30621	1N4148
6458	4822 130 30621	1N4148

INTERGRATED CIRCUIT

7401	4822 209 13144	TMP87CS71F-372S51141
7401	4822 209 13592	TMP87CS71F-362S51131
7403	4822 209 31508	ST24C01B1
7404	4822 209 31981	SAA6579T/V1
7416	5322 209 12171	74HC4094D

TRANSISTOR

7406	5322 130 42755	BC847C
7407	5322 130 42755	BC847C
7414	5322 130 42755	BC847C
7415	5322 130 42755	BC847C
7417	5322 130 42755	BC847C
7420	5322 130 42755	BC847C
7428	4822 130 10165	GP1U28XP


ECO 5 TUNER BOARD
FM-RF
FM-OSC
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
AM-IF1
MW-RF
LW-RF
FRAME
1101
1104
1105

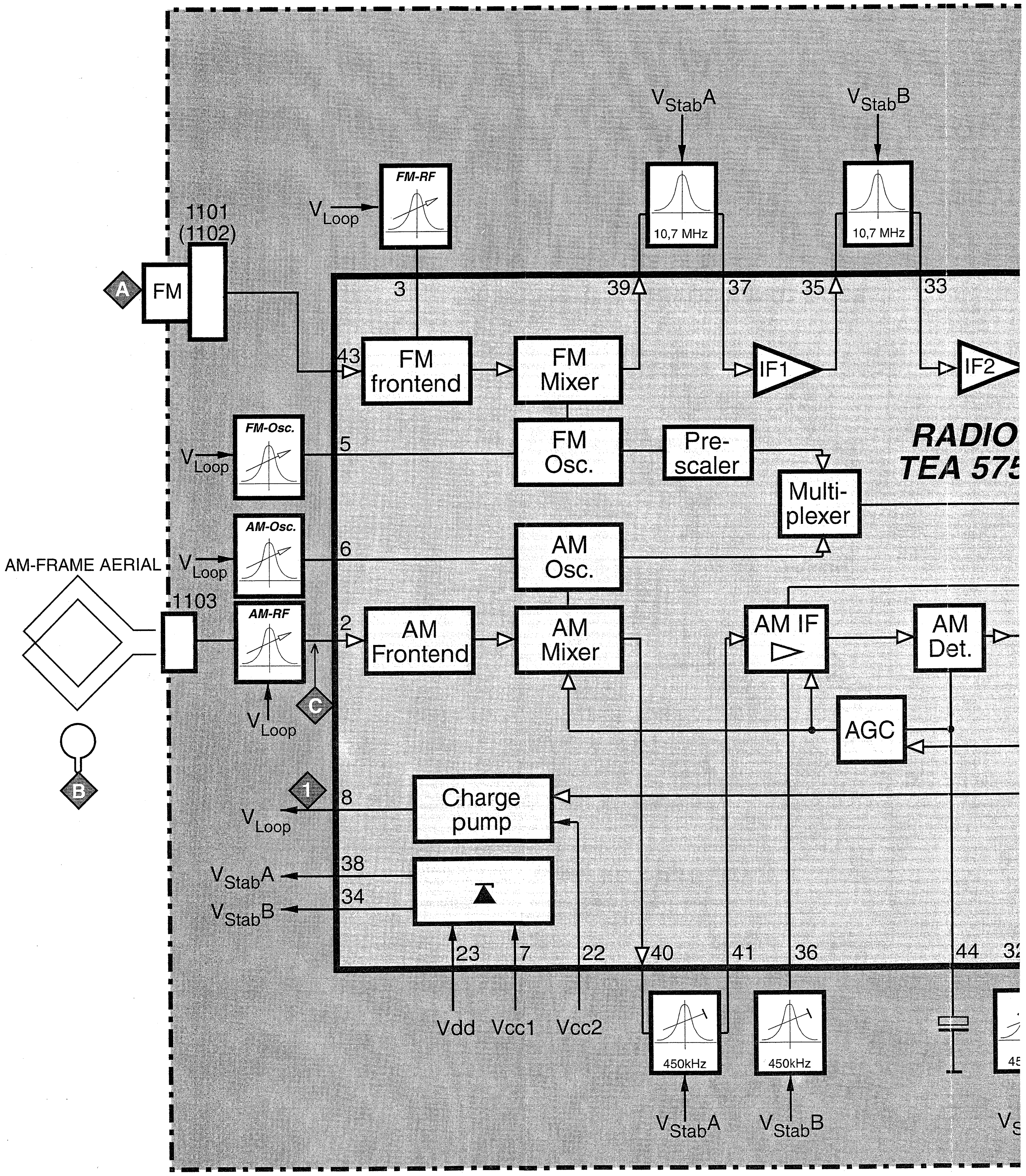
TUNER BOARD ECO5

TABLE OF CONTENTS

Blockdiagram 7B-1
Adjustmant table 7B-2
Component layout 7B-2
Circuit diagram 7B-3
Partslist 7B-4

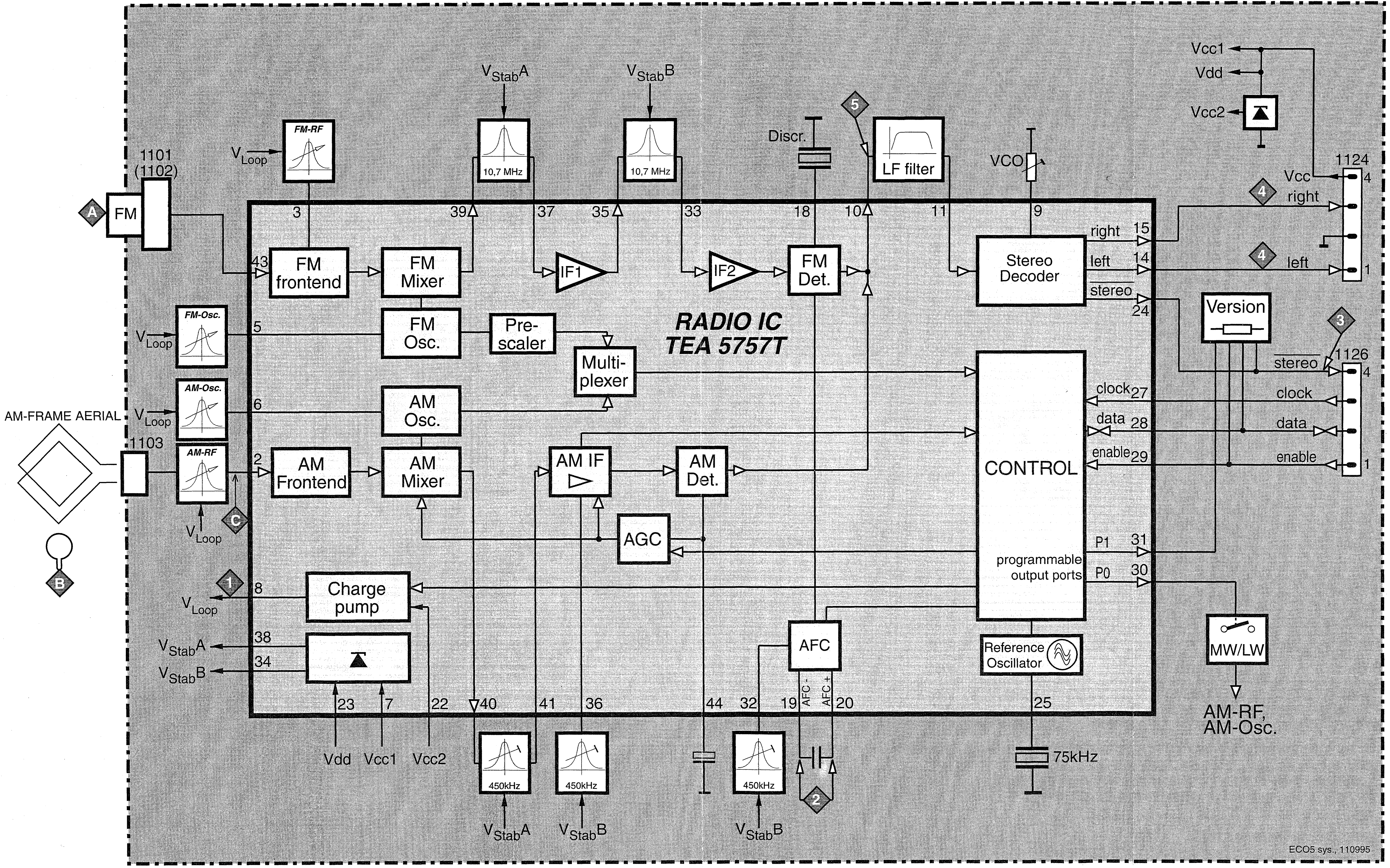
BLOCKDIAGRAM

TUNER BOARD
ECO 5 systems

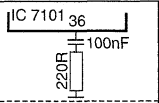
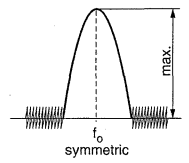
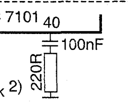
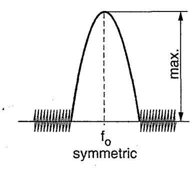

FM
1101
(1102)
A
FM-RF
VLoop
VStabA
VStabB
10,7 MHz
10,7 MHz
3
39
37
35
33
43
FM frontend
FM Mixer
IF1
IF2
FM-Osc.
5
FM Osc.
Pre-scaler
Multi-plexer
RADIO
TEA 575
AM-FRAME AERIAL
AM-Osc.
6
AM Osc.
1103
AM-RF
2
AM Frontend
AM Mixer
AM IF
AM Det.
AGC
C
B
1
8
Charge pump
38
34
23
7
22
40
41
36
44
Vdd
Vcc1
Vcc2
450kHz
450kHz

BLOCKDIAGRAM

TUNER BOARD
ECO 5 systems


RADIO IC
TEA 5757T
FM
A
1101
(1102)
FM-RF
V_{Loop}
$V_{Stab}A$
$V_{Stab}B$
10,7 MHz
10,7 MHz
Discr.
5
LF filter
VCO
Vcc1
Vdd
Vcc2
1124
Vcc
right
left
4
FM frontend
FM Mixer
IF1
IF2
FM Det.
Stereo Decoder
right
left
stereo
FM-Osc.
FM Osc.
Pre-scaler
Multi-plexer
Version
3
1126
stereo
clock
data
enable
AM-FRAME AERIAL
AM-Osc.
AM Osc.
1103
AM-RF
AM Frontend
AM Mixer
AM IF
AM Det.
AGC
C
B
CONTROL
clock
data
enable
P1
P0
programmable output ports
1
Charge pump
Reference Oscillator
AFC
AFC -
AFC +
MW/LW
AM-RF, AM-Osc.
Vdd
Vcc1
Vcc2
450kHz
450kHz
450kHz
2
75kHz
3
39
37
35
33
18
10
11
9
15
14
24
43
5
6
2
27
28
29
31
30
8
38
34
23
7
22
40
41
36
44
32
19
20
25
ECO5 sys., 110995

TUNER ADJUSTMENT TABLE (**ECO5** FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM			108MHz	5130`	◇1	8V ±0.2V
87.5 - 108MHz			87.5MHz	check		4.3V ±0.5V
MW FM/AM-version, 10kHz grid			1700kHz	5123		8V ±0.2V
530 - 1700kHz			530kHz	check		1.1V ±0.4V
LW			279kHz	5122		8V ±0.2V
153 - 279kHz			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- and FM/MW-version (9kHz grid)			1602kHz	5123		8V ±0.2V
531 - 1602kHz			531kHz	check		1.1V ±0.4V
FM RF						
FM 87.5 - 108MHz	108MHz	◇A mod=1kHz Δf=±22.5kHz	108MHz	2155	◇4	MAX
	87.5MHz		87.5MHz	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz [1]
AM IF						
MW	450kHz connect pin 26 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	◇C Δf=±15kHz V_{RF} = 3mV	 IC 7101 36 100nF 220R	5111	◇4	 max. f_o symmetric
			 IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 10mV		5114	◇2	0 ± 2 mV DC
AM RF [3]						
MW [4] FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	◇B	1494kHz	2106	◇4	 max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid	1500kHz	Δf = ±30kHz V_{RF} as low as possible	1500kHz	2106		
530 - 1700kHz	560kHz		560kHz	5102		

ECO5, 020995

Use service test program. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

[2] RC network serves for damping the IF-filter while adjusting the other one.

[3] For AM RF adjustments the original frame antenna has to be used !

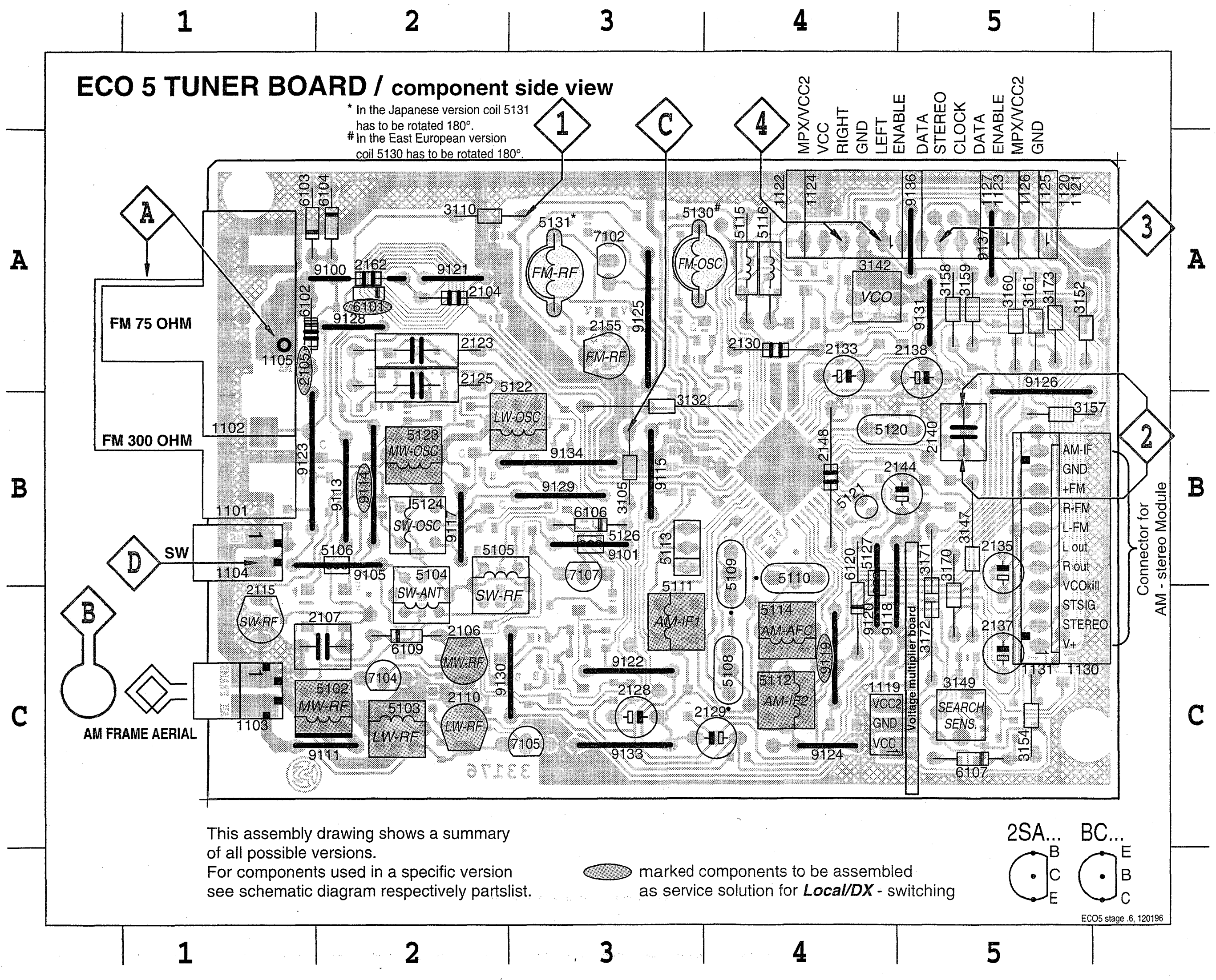
[4] MW has to be aligned before LW.

↕ Repeat

1101	A1	2106	C2	2137	C5	3147	B5	3172	C5	5112	C4	5127	B4	7102	A3	9117	B2	9129	B3
1102	A1	2107	C2	2138	A5	3149	C5	3173	A5	5113	B3	5130	A3	7104	C2	9118	B4	9130	C3
1103	C1	2110	C2	2140	B5	3152	A5	5102	C2	5114	C4	5131	A3	7105	C3	9119	C4	9131	A5
1104	B1	2115	C1	2144	B5	3154	C5	5103	C2	5115	A4	6101	A2	7107	B3	9120	B4	9133	C3
1105	A1	2123	A2	2148	B4	3157	B5	5104	C2	5116	A4	6102	A1	9100	A2	9121	A2	9134	B3
1119	C5	2125	A2	2155	A3	3158	A5	5105	B2	5120	B4	6103	A1	9101	B3	9122	C3	9136	A5
1120	A5	2128	C3	2162	A2	3159	A5	5106	B2	5121	B4	6104	A2	9105	B2	9123	B1	9137	A5
1130	B5	2129	C4	3105	B3	3160	A5	5108	C4	5122	B3	6106	B3	9111	C2	9124	C4		
1131	B5	2130	A4	3110	A2	3161	A5	5109	B4	5123	B2	6107	C5	9113	B2	9125	A3		
2104	A2	2133	A4	3132	B3	3170	C5	5110	B4	5124	B2	6109	C2	9114	B2	9126	B5		
2105	A1	2135	B5	3142	A4	3171	C5	5111	C3	5126	B3	6120	C4	9115	B3	9128	A2		

ECO 5 TUNER BOARD / component side view

* In the Japanese version coil 5131 has to be rotated 180°.
# In the East European version coil 5130 has to be rotated 180°.


1
2
3
4
5
A
B
C
◇1
◇C
◇4
◇A
◇3
◇2
◇D
◇B
MPX/VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX/VCC2
GND
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
FM-RF
FM-OSC
VCO
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
MW-RF
LW-RF
AM-IF1
AM-AFC
AM-IF2
SEARCH SENS.
Voltage multiplier board
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
VCC2
GND
VCC
1101
1102
1103
1104
1105
1119
1130
1131
5131*
5130#
7102
3110
3142
9100
2162
9121
6101
2104
9128
2155
2130
2133
2138
2123
2125
5122
3132
5120
3157
9126
5123
9134
9129
5124
6106
5126
9101
5106
9105
5104
5105
7107
5111
5110
5114
5112
2115
2107
2106
6109
5102
5103
7104
2110
7105
9122
2128
2129
9133
9124
3149
3154
6107
9111
9113
9114
9123
2148
2140
2144
3147
2135
2137
3170
3171
3172
6120
5127
5121
9118
9120
9119
5108
5109
5113
5115
5116
3105
9115
9117
9125
9130
9131
3158
3159
3160
3161
3173
3152
6102
6103
6104
2105
1122
1124
9136
1127
1123
1126
1125
1120
1121
9137
33176

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

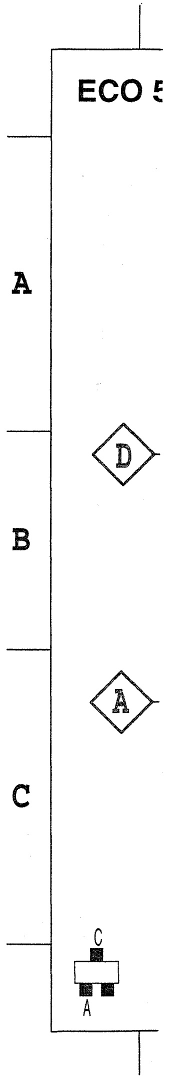
▨ marked components to be assembled as service solution for ***Local/DX*** - switching

2SA... B C E
BC... E B C

ECO5 stage .6, 120196

2101	C4	2
2102	C4	2
2103	C3	2
2108	A4	2
2109	A4	2
2112	B5	2
2113	A4	2
2114	A4	2
2116	B3	2
2117	A3	2
2118	B4	2

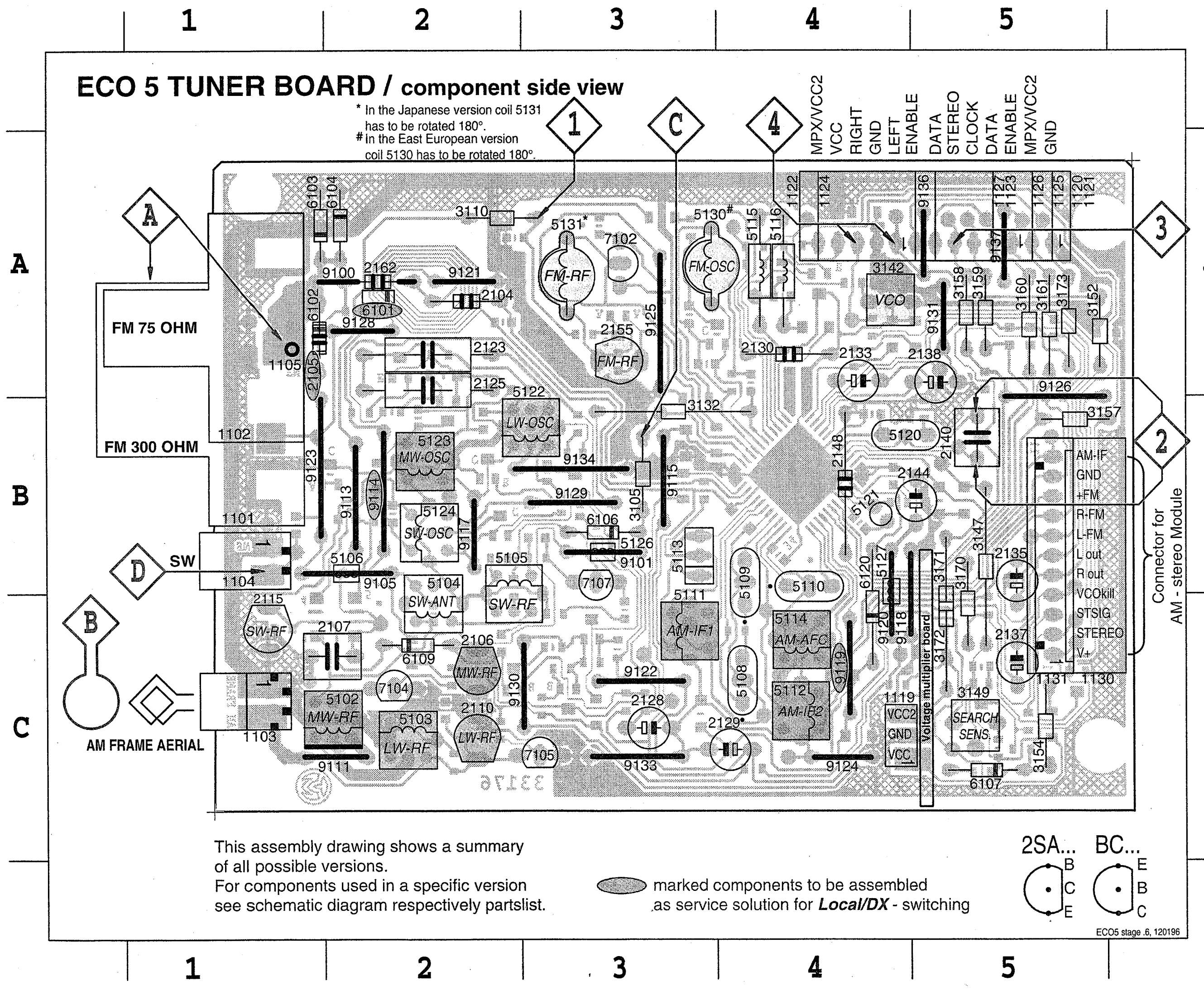
ECO 5



1101 A1	2106 C2	2137 C5	3147 B5	3172 C5	5112 C4	5127 B4	7102 A3	9117 B2	9129 B3
1102 A1	2107 C2	2138 A5	3149 C5	3173 A5	5113 B3	5130 A3	7104 C2	9118 B4	9130 C3
1103 C1	2110 C2	2140 B5	3152 A5	5102 C2	5114 C4	5131 A3	7105 C3	9119 C4	9131 A5
1104 B1	2115 C1	2144 B5	3154 C5	5103 C2	5115 A4	6101 A2	7107 B3	9120 B4	9133 C3
1105 A1	2123 A2	2148 B4	3157 B5	5104 C2	5116 A4	6102 A1	9100 A2	9121 A2	9134 B3
1119 C5	2125 A2	2155 A3	3158 A5	5105 B2	5120 B4	6103 A1	9101 B3	9122 C3	9136 A5
1120 A5	2128 C3	2162 A2	3159 A5	5106 B2	5121 B4	6104 A2	9105 B2	9123 B1	9137 A5
1130 B5	2129 C4	3105 B3	3160 A5	5108 C4	5122 B3	6106 B3	9111 C2	9124 C4	
1131 B5	2130 A4	3110 A2	3161 A5	5109 B4	5123 B2	6107 C5	9113 B2	9125 A3	
2104 A2	2133 A4	3132 B3	3170 C5	5110 B4	5124 B2	6109 C2	9114 B2	9126 B5	
2105 A1	2135 B5	3142 A4	3171 C5	5111 C3	5126 B3	6120 C4	9115 B3	9128 A2	

ECO 5 TUNER BOARD / component side view

* In the Japanese version coil 5131 has to be rotated 180°.
# In the East European version coil 5130 has to be rotated 180°.

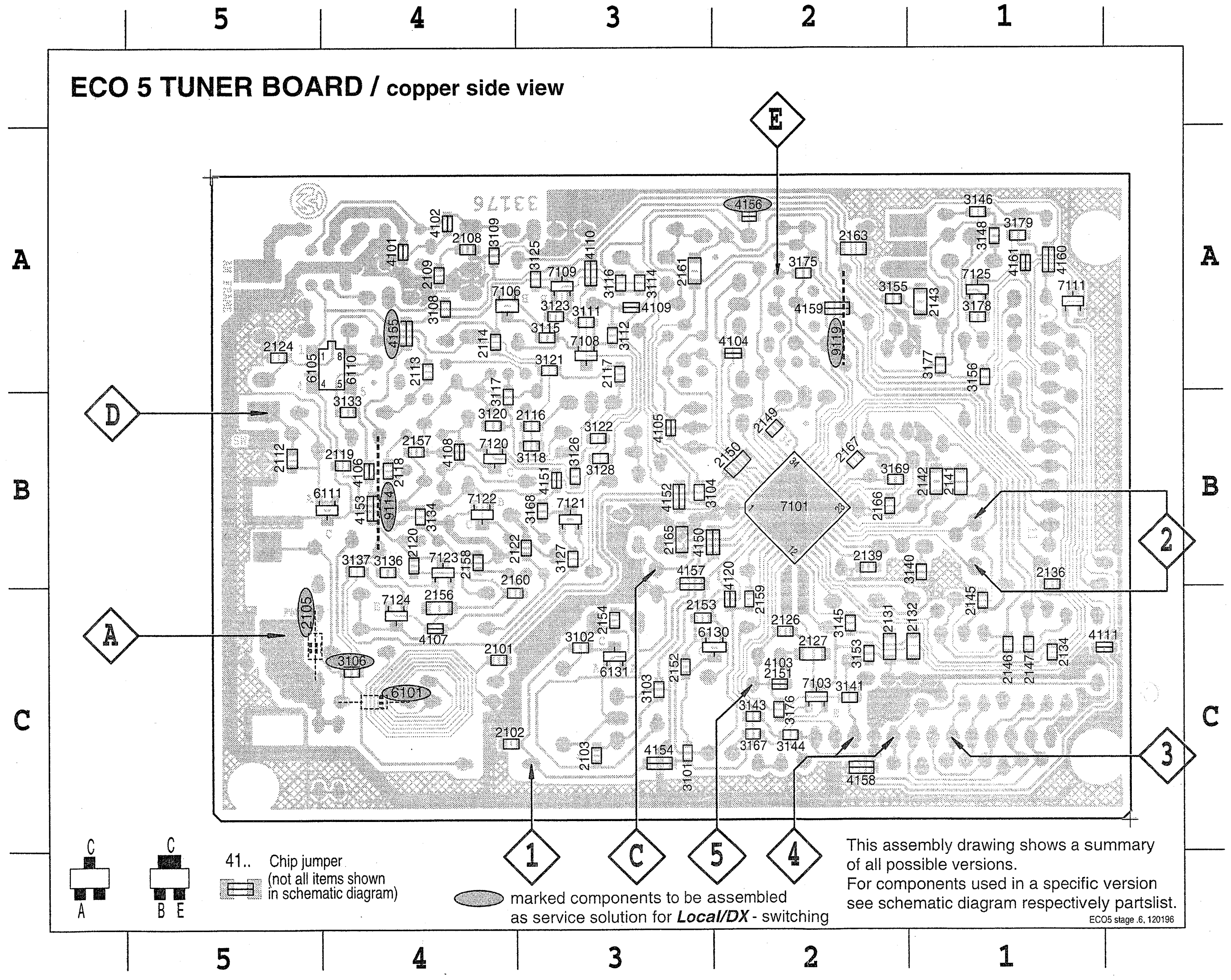

1
2
3
4
5
A
B
C
MPX/VCC2
VCC
RIGHT
GND
LEFT
ENABLE
DATA
STEREO
CLOCK
DATA
ENABLE
MPX/VCC2
GND
FM 75 OHM
FM 300 OHM
SW
AM FRAME AERIAL
FM-RF
FM-OSC
VCO
LW-OSC
MW-OSC
SW-OSC
SW-ANT
SW-RF
MW-RF
LW-RF
AM-IF1
AM-AFC
AM-IF2
SEARCH SENS.
AM-IF
GND
+FM
R-FM
L-FM
L out
R out
VCOkill
STSIG
STEREO
V+
Connector for AM - stereo Module
Voltage multiplier board
VCC2
GND
VCC
2SA...
BC...
B
C
E
33176
ECO5 stage .6, 120196

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

marked components to be assembled as service solution for ***Local/DX*** - switching

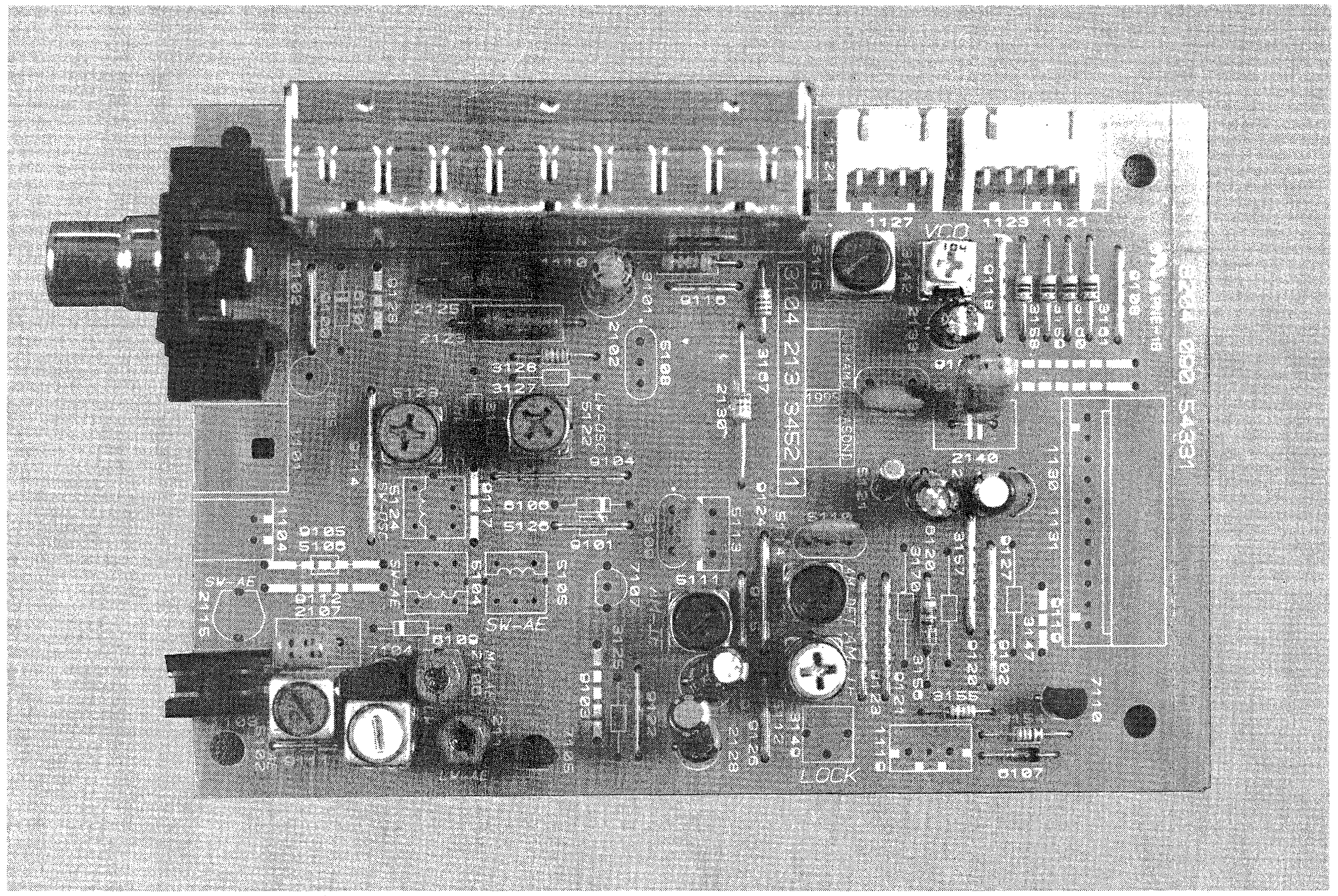
2101 C4	2119 B4	2141 B1	2154 C3	3101 C3	3116 A3	3133 B4	3153 C2	4101 A4	4120 C2	4160 A1	7109 A3
2102 C4	2120 B4	2142 B1	2156 C4	3102 C3	3117 B4	3134 B4	3155 A2	4102 A4	4150 B2	4161 A1	7111 A1
2103 C3	2122 B3	2143 A1	2157 B4	3103 C3	3118 B3	3136 B4	3156 A1	4103 C2	4151 B3	6105 A4	7120 B4
2108 A4	2124 A5	2145 C1	2158 B4	3104 B3	3120 B4	3137 B4	3167 C2	4104 A2	4152 B3	6110 A4	7121 B3
2109 A4	2126 C2	2146 C1	2159 C2	3106 C4	3121 A3	3140 B1	3168 B3	4105 B3	4153 B4	6111 B4	7122 B4
2112 B5	2127 C2	2147 C1	2160 C4	3108 A4	3122 B3	3141 C2	3169 B2	4106 B4	4154 C3	6130 C2	7123 B4
2113 A4	2131 C2	2149 B2	2161 A3	3109 A4	3123 A3	3143 C2	3175 A2	4107 C4	4155 A4	6131 C3	7124 C4
2114 A4	2132 C1	2150 B2	2163 A2	3111 A3	3125 A3	3144 C2	3176 C2	4108 B4	4156 A2	7101 B2	7125 A1
2116 B3	2134 C1	2151 C2	2165 B3	3112 A3	3126 B3	3145 C2	3177 A1	4109 A3	4157 B3	7103 C2	
2117 A3	2136 B1	2152 C3	2166 B2	3114 A3	3127 B3	3146 A1	3178 A1	4110 A3	4158 C2	7106 A4	
2118 B4	2139 B2	2153 C3	2167 B2	3115 A3	3128 B3	3148 A1	3179 A1	4111 C1	4159 A2	7108 A3	

ECO 5 TUNER BOARD / copper side view


5
4
3
2
1
A
B
C
E
D
2
3
1
C
5
4
7101
33176
C
A
C
B E
41..
Chip jumper
(not all items shown in schematic diagram)
ECO5 stage .6, 120196

marked components to be assembled as service solution for ***Local/DX*** - switching

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.



TUNER 95 BOARD

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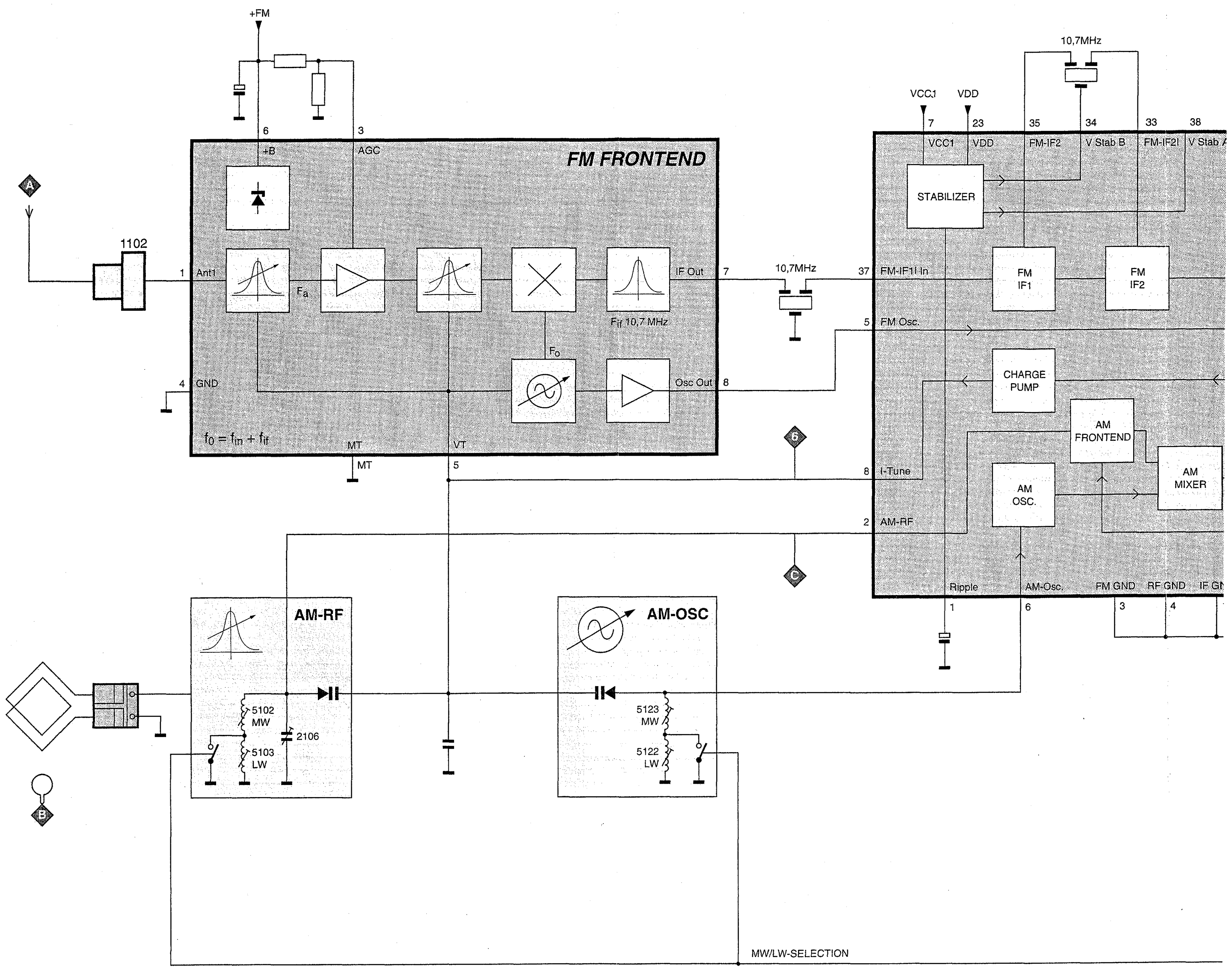
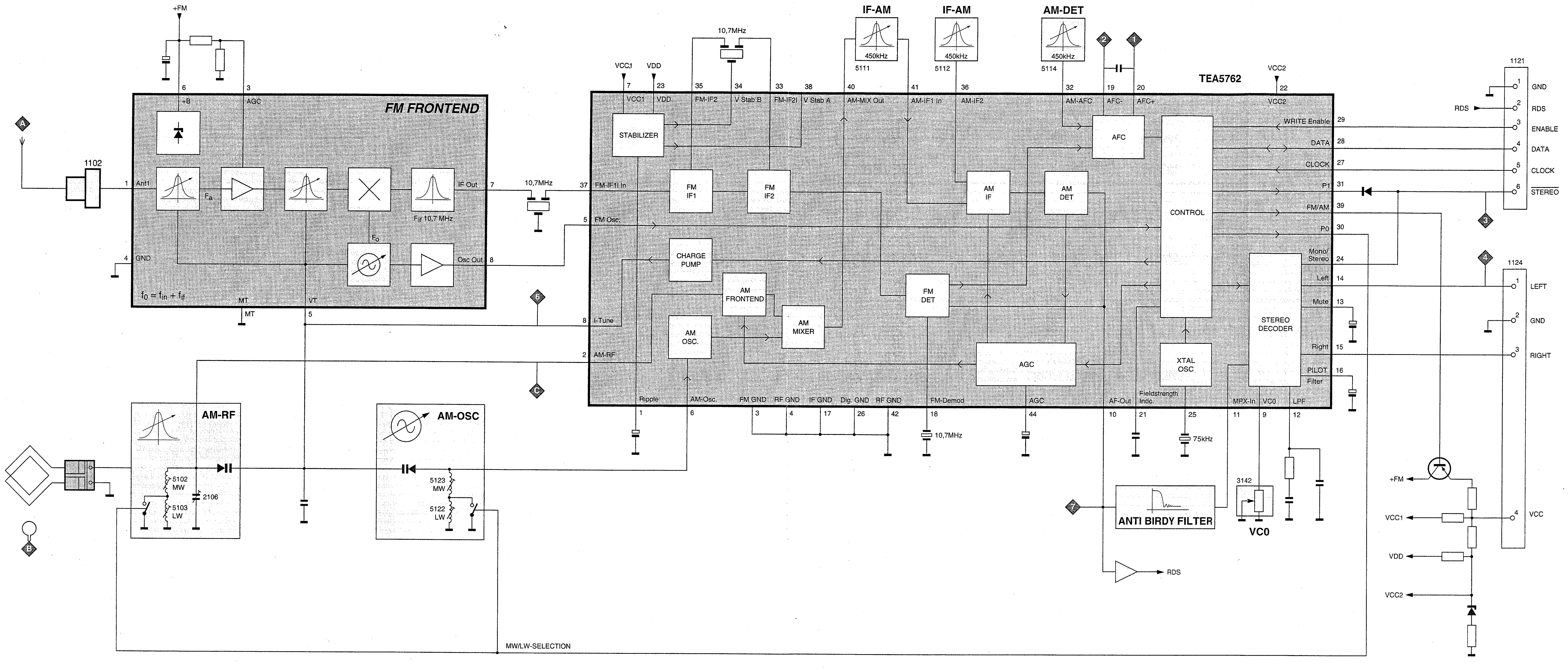
BLOCKDIAGRAM

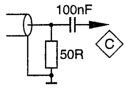


+FM
6
3
+B
AGC
FM FRONTEND
A
1102
1
Ant1
Fa
IF Out
7
FIF 10,7 MHz
Fo
4
GND
Osc Out
8
f0 = fin + fif
MT
VT
MT
5
10,7MHz
10,7MHz
VCC1
VDD
7
23
35
34
33
38
VCC1
VDD
FM-IF2
V Stab B
FM-IF2I
V Stab A
STABILIZER
37
FM-IF1I In
FM IF1
FM IF2
5
FM Osc.
CHARGE PUMP
AM FRONTEND
AM MIXER
8
I-Tune
AM OSC.
2
AM-RF
Ripple
AM-Osc.
FM GND
RF GND
IF GN
1
6
3
4
AM-RF
AM-OSC
5102 MW
2106
5103 LW
5123 MW
5122 LW
B
MW/LW-SELECTION

BLOCKDIAGRAM


+FM
10,7MHz
IF-AM
IF-AM
AM-DET
450kHz
450kHz
450kHz
5111
5112
5114
VCC1
VDD
VCC2
TEA5762
1121
FM FRONTEND
+B
AGC
Ant1
IF Out
GND
Osc Out
MT
VT
F_a
F_o
F_{if} 10,7 MHz
$f_0 = f_{in} + f_{if}$
1102
STABILIZER
FM IF1
FM IF2
AM IF
AM DET
AFC
CONTROL
CHARGE PUMP
AM FRONTEND
AM MIXER
AM OSC.
FM DET
AGC
XTAL OSC
STEREO DECODER
FM-IF1 In
FM Osc.
I-Tune
AM-RF
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
WRITE Enable
DATA
CLOCK
P1
FM/AM
P0
Mono/Stereo
Left
Mute
Right
PILOT Filter
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VC0
LPF
GND
RDS
ENABLE
DATA
CLOCK
STEREO
1124
LEFT
GND
RIGHT
VCC
AM-RF
5102 MW
5103 LW
2106
AM-OSC
5123 MW
5122 LW
75kHz
3142
ANTI BIRDY FILTER
VC0
RDS
+FM
VCC1
VDD
VCC2
MW/LW-SELECTION
A
B
C
1
2
3
4
6
7

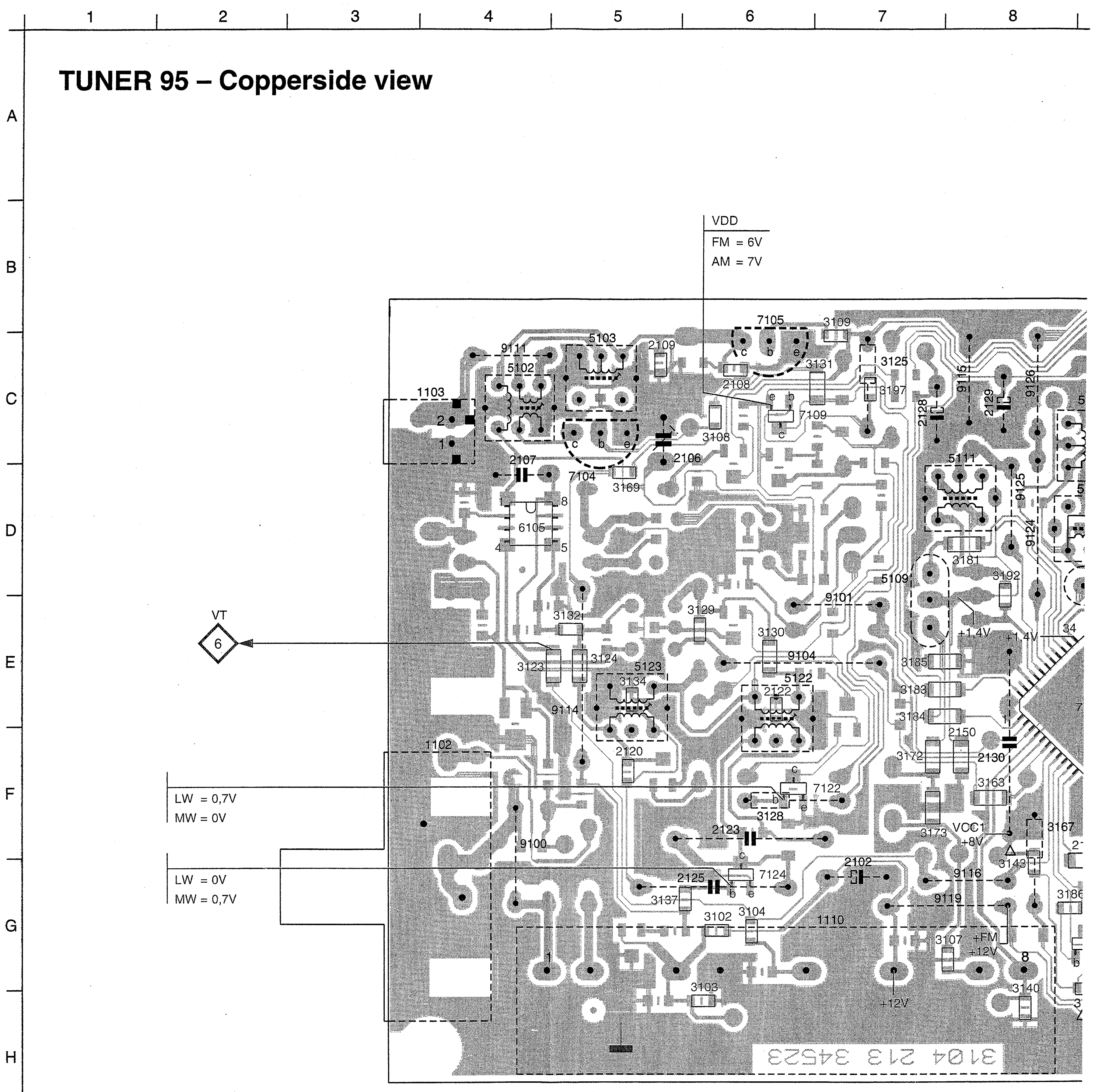
ADJUSTMENT TABLE

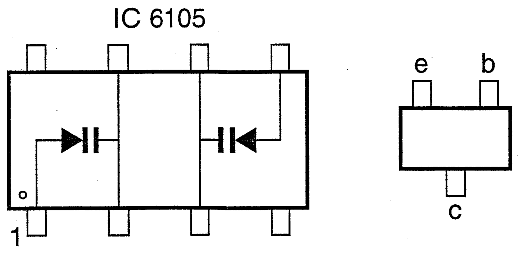
Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	6	7...9V
			87.5MHz	check		1.3...2V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8.3V ±0.2V
			531kHz	check		1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8.3V ±0.2V
			153kHz	check		1V ±0.4V
FM - VCO						
FM	98MHz 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz
DISTORTION						
FM	98MHz 1mV 90% L, 9% pilot mod=1kHz	A	98MHz	mixcoil inside tuner 1110	4	min. distortion
AM IF						
MW	450kHz Δf=10kHz as low as possible			5111	7	symmetrical and max. height
				5112		
	450.0kHz continuous wave	C		5114	1 2	0mV ±2mV
AM RF						
MW	588kHz mod=1kHz, 30% AM 1494kHz	B*	558kHz	5102	7	MAX
			1494kHz	2106		
LW	198kHz mod=1kHz, 30% AM		198kHz	5103		MAX

* Signal supplied via frame antenna

↕ Repeat

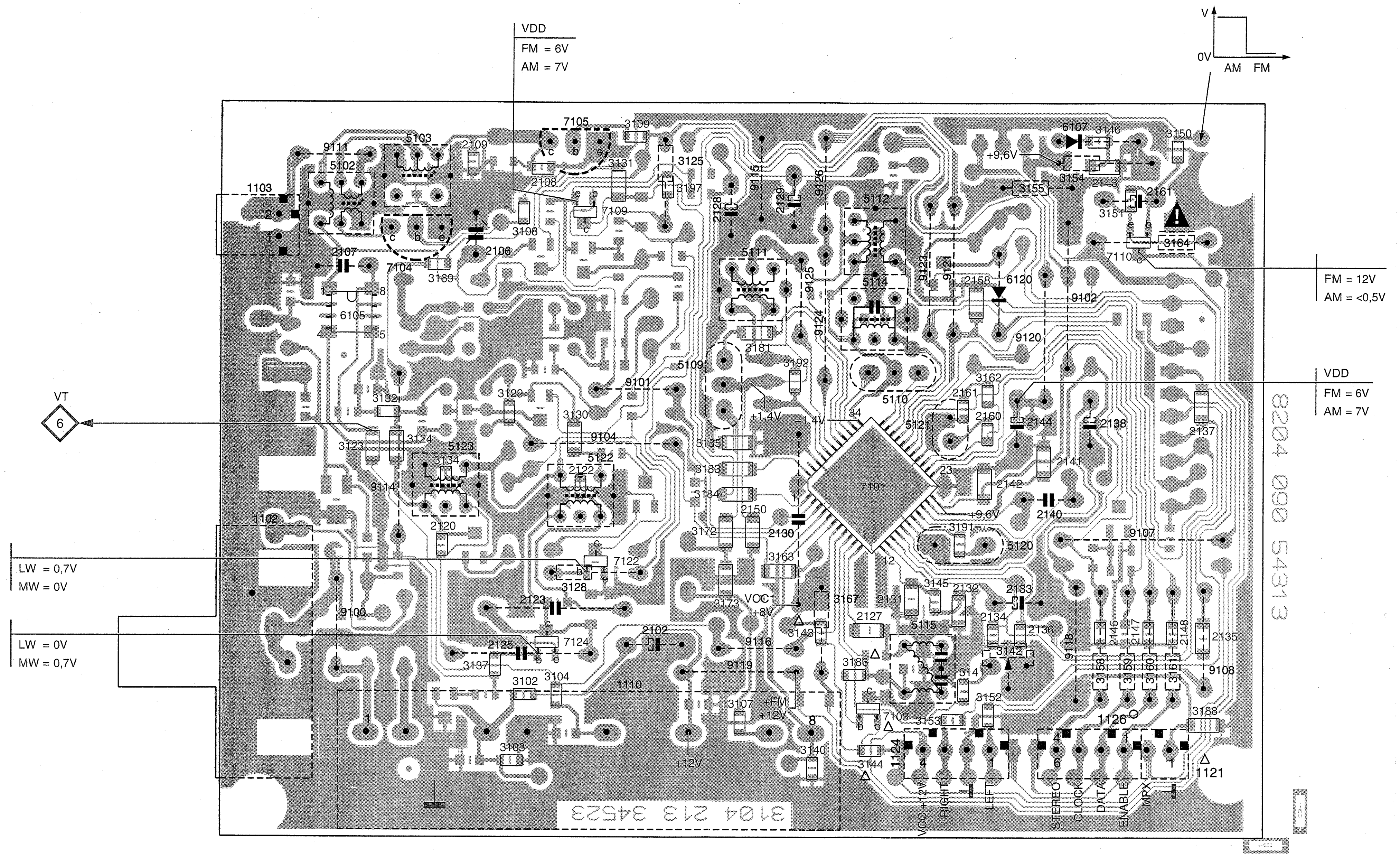
TUNER 95 – Copperside view


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
VDD
FM = 6V
AM = 7V
VT
6
LW = 0,7V
MW = 0V
LW = 0V
MW = 0,7V
1103
1102
1110
9111
5102
5103
2109
7105
3109
3125
3131
2108
3197
7109
3108
2107
7104
3169
2106
2128
2129
9115
9126
5111
9125
9124
6105
3181
3192
5109
9101
+1,4V
3132
3129
3130
9104
3123
3124
5123
3134
5122
2122
9114
3185
3183
3184
2150
2120
3172
2130
3163
7122
3128
3173
VCC1
+8V
3167
2123
9100
3143
2102
2125
7124
9116
9119
3137
3102
3104
3107
+FM
+12V
3103
+12V
3140
3186
3104 213 34523

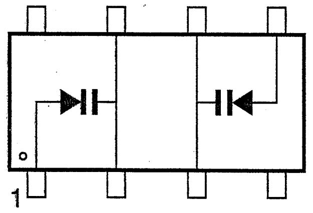

IC 6105
1
e
b
c

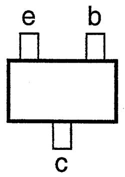
TUNER 95
3104 217 04120/04340 bl. 110 - 01

TUNER 95 – Copperside view


VDD
FM = 6V
AM = 7V
V
0V
AM FM
FM = 12V
AM = <0,5V
VDD
FM = 6V
AM = 7V
VT
6
LW = 0,7V
MW = 0V
LW = 0V
MW = 0,7V
1103
1102
1110
1124
1126
1121
5102
5103
9111
2109
7105
3109
3125
3197
3131
7109
2108
3108
2106
2107
7104
3169
6105
2128
2129
9115
9126
5112
5111
5114
3181
3192
9124
9125
9123
9121
2158
6120
9102
6107
3146
3150
+9,6V
3154
2143
3155
3151
2161
3164
7110
9120
5109
9101
3132
3129
3130
9104
3123
3124
5123
3134
9114
5122
2122
2120
3185
3183
3184
+1,4V
34
7101
23
12
5110
5121
3162
2161
2160
2144
2138
2137
2141
2142
2140
+9,6V
3191
5120
9107
3172
2150
2130
3163
7122
3128
2123
9100
3173
VCC1
+8V
3167
2131
2127
3145
2132
2133
2134
2136
5115
3143
9116
9119
3186
3142
3141
9118
3158
3159
3160
3161
2145
2147
2148
2135
9108
2125
7124
3137
2102
3102
3104
3107
+FM
+12V
3140
3152
7103
3153
3144
3188
3103
+12V
VCC+12V
RIGHT
LEFT
STEREO
CLOCK
DATA
ENABLE
MPX
3104 213 34523
8204 090 54313

IC 6105





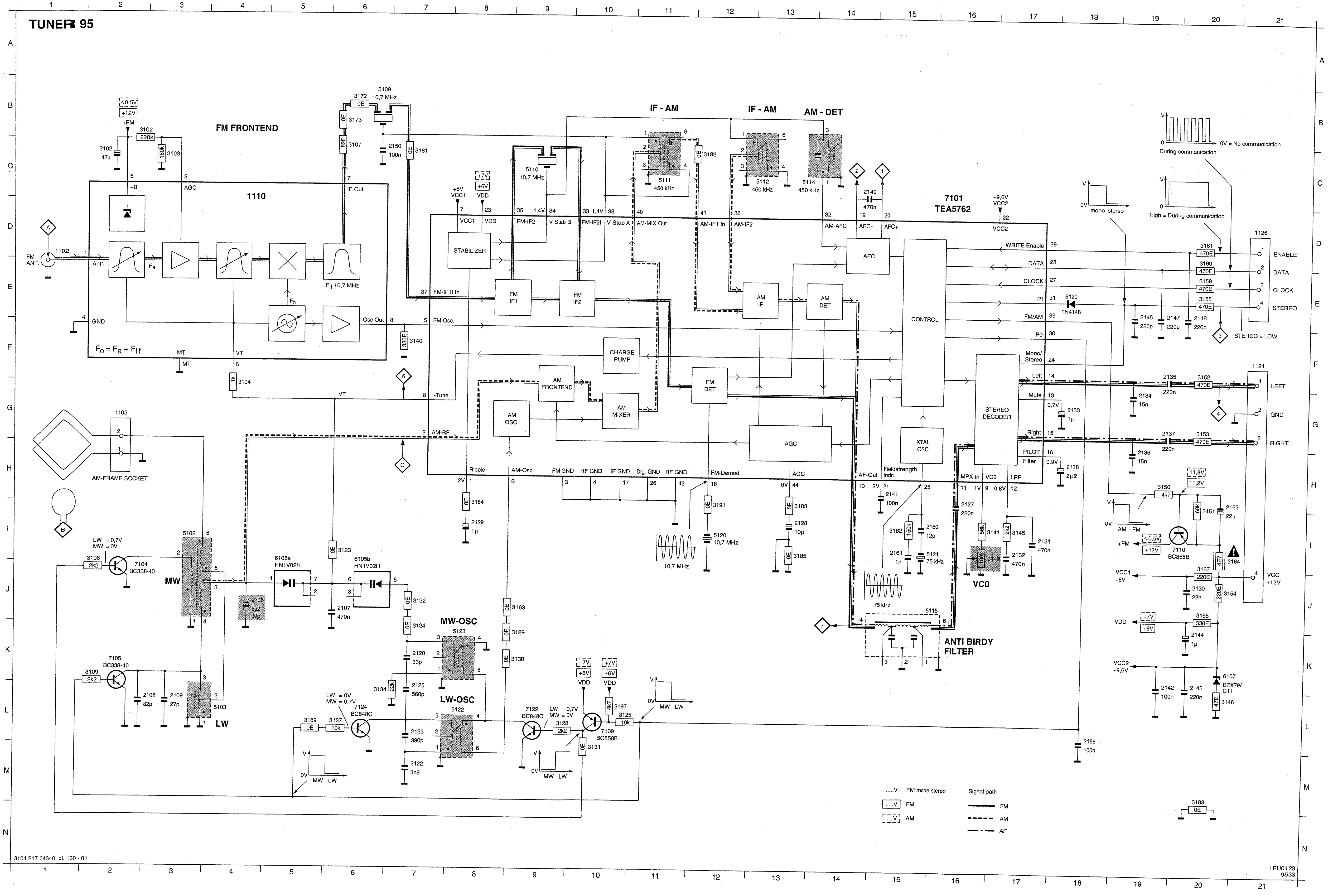
△ only FW650 (04120)

○ only FW610 (04340)

1102	F4
1103	C3
1110	G7
1121	H11
1124	H9
1126	G10
2102	G7
2106	C5
2107	D4
2108	C6
2109	C5
2120	F5
2122	E6
2123	F6
2125	G5
2127	F8
2128	C7
2129	C8
2130	F8
2131	F9
2132	F9
2133	F10
2134	F9
2135	G11
2136	G10
2137	E11
2138	E10
2140	F10
2141	E10
2142	E10
2143	C10
2144	E10
2145	G11
2147	G11
2148	G11
2150	F8
2158	D9
2160	E9
2161	E9
2161	C11
3102	G6
3103	H6
3104	G6
3107	G7
3108	C6
3109	B7
3123	E4
3124	E5
3125	C7
3128	F6
3129	E6
3130	E6
3131	C6
3132	E5
3134	E5
3137	G5
3140	H8
3141	G9
3142	G10
3143	G8
3144	H8
3145	F9
3146	B10
3150	C11
3151	C10
3152	G9
3153	G9
3154	C10
3155	C10
3158	G10
3159	G11
3160	G11
3161	G11
3162	E9
3163	F8
3164	C11
3167	F8
3169	D5
3172	F7
3173	F7
3181	D8
3183	E7
3184	E7
3185	E7
3186	G8
3188	G11
3191	F9
3192	D8
3197	C7
5102	C4
5103	C5
5109	D7
5110	E9
5111	C8
5112	C9
5114	D9
5115	G9
5120	F10
5121	E9
5122	E6
5123	E5
6105	D4
6107	B10
6120	D10
7101	E9
7103	G9
7104	D5
7105	B6
7109	C6
7110	D11
7122	F7
7124	G6
9100	F4
9101	E7
9102	D10
9104	E6
9107	F11
9108	G11
9111	C4
9114	E5
9115	C8
9116	G8
9118	G10
9119	G7
9120	D10
9121	D9
9123	D9
9124	D8
9125	D8
9126	C8

1102	D1
1103	G2
1110	D4
1124	F21
1126	D21
2102	C2
2106	J4
2107	J6
2108	L3
2109	L3
2120	K7
2122	M7
2123	L7
2125	L7
2127	H16
2128	I13
2129	I8
2130	J20
2131	I17
2132	I17
2133	G18
2134	G19
2135	F19
2136	H19
2137	G19
2138	H18
2140	C14
2141	H15
2142	K19
2143	K20
2144	K20
2145	E19
2147	E19
2148	E20
2150	C6
2158	L18
2160	I15
2161	I15
2162	H20
3102	B2
3103	C3
3104	G4
3107	C6
3108	J2
3109	K2
3123	I6
3124	K7
3125	L10
3128	L9
3129	K9
3130	K9
3131	M10
3132	J7
3134	L6
3137	L6
3140	F7
3141	I16
3142	I16
3145	I17
3146	L20
3150	H19
3151	I20
3152	F20
3153	G20
3154	J20
3155	J20
3158	E20
3159	E20
3160	D20
3161	D20
3162	I15
3163	J9
3164	I20
3167	I20
3169	L5
3172	B6
3173	B6
3181	C7
3183	I13
3184	I8
3185	I13
3188	M20
3191	I12
3192	C12
3197	L10
5102	I3
5103	L4
5109	B6
5110	C9
5111	C11
5112	C12
5114	C13
5115	J15
5120	I12
5121	I15
5122	L8
5123	K8
6105a	I5
6105b	I6
6107	K20
6120	E18
7101	C16
7104	J2
7105	K2
7109	L10
7110	I19
7122	L9
7124	L6

TUNER 95


FM FRONTEND
1110
FM ANT.
1102
Ant1
Fa
Fif 10,7 MHz
Fo
Fo = Fa + Fif
+B
AGC
IF Out
Osc Out
GND
MT
VT
+FM
<0,5V
+12V
2102 47µ
3102 220k
3103 180k
3104 1k
3140 330E
5109 10,7 MHz
3172 0E
3173 0E
3107 82E
2150 100n
3181 0E
5110 10,7 MHz
IF - AM
IF - AM
AM - DET
5111 450 kHz
5112 450 kHz
5114 450 kHz
3192 0E
2140 470n
7101 TEA5762
STABILIZER
FM IF1
FM IF2
CHARGE PUMP
AM FRONTEND
AM MIXER
AM OSC.
FM DET
AM IF
AM DET
AFC
AGC
CONTROL
STEREO DECODER
XTAL OSC
VCC1
VDD
FM-IF2
V Stab B
FM-IF2I
V Stab A
AM-MIX Out
AM-IF1 In
AM-IF2
AM-AFC
AFC-
AFC+
VCC2
FM-IF1I In
FM Osc.
I-Tune
AM-RF
Ripple
AM-Osc.
FM GND
RF GND
IF GND
Dig. GND
RF GND
FM-Demod
AGC
AF-Out
Fieldstrength Indc.
MPX-In
VCO
LPF
WRITE Enable
DATA
CLOCK
P1
FM/AM
P0
Mono/ Stereo
Left
Mute
Right
PILOT Filter
+8V
+7V
+6V
+9,6V
1126
ENABLE
DATA
CLOCK
STEREO
STEREO = LOW
3161 470E
3160 470E
3159 470E
3158 470E
6120 1N4148
2145 220p
2147 220p
2148 220p
0V = No communication
During communication
High = During communication
mono stereo
1124
LEFT
GND
RIGHT
2135 220n
3152 470E
2137 220n
3153 470E
2134 15n
2136 15n
2133 1µ
2138 2µ2
0,7V
0,9V
3184 0E
2129 1µ
3191 0E
5120 10,7 MHz
10,7 MHz
3183 0E
2128 10µ
3185 0E
2141 100n
2127 220n
3162 150k
2160 12p
2161 1n
5121 75 kHz
75 kHz
3141 56k
3142 100k
3145 2k2
2132 470n
2131 470n
VCO
5115
ANTI BIRDY FILTER
11,8V
11,2V
3150 4k7
3151 68k
2162 22µ
7110 BC858B
AM FM
3164 4E7
3167 220E
3154 220E
2130 22n
VCC1 +8V
VCC +12V
VDD
3155 330E
2144 1µ
VCC2 +9,6V
6107 BZX79/ C11
3146 47E
2142 100n
2143 220n
2158 100n
1103
AM-FRAME SOCKET
LW = 0,7V
MW = 0V
3108 2k2
7104 BC338-40
MW
5102
2106 5p2- 30p
6105a HN1V02H
6105b HN1V02H
3123 0E
2107 470n
3132 0E
3124 0E
MW-OSC
5123
2120 33p
3134 22k
2125 560p
LW-OSC
5122
2123 390p
2122 3n9
7105 BC338-40
3109 2k2
2108 82p
2109 27p
5103
LW
LW = 0V
MW = 0,7V
7124 BC848C
3169 0E
3137 10k
3163 0E
3129 0E
3130 0E
7122 BC848C
LW = 0,7V
MW = 0V
3128 2k2
3131 0E
7109 BC858B
3197 4k7
3125 10k
MW LW
3188 0E
.....V FM mode stereo
FM
AM
Signal path
FM
AM
AF

ELECTRICAL PARTSLIST TUNER 95 BOARD

MISCELLANEOUS

1102	4822 267 10283	SOCKET COAX IEC 75R
1103	4822 265 31184	JST CONNECTOR 2 POLE
1110	4822 210 10492	FRONTEND ASSY /02/08

DIODES

6105	4822 130 83075	HN1 V02H
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148

TRANSISTORS

7103	4822 130 42513	BC858C
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7110	5322 130 41983	BC858B
7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1

COILS

5102	4822 157 71634	RF-COIL MW
5103	4822 157 71635	RF-COIL LW
5109	4822 157 71639	CER. FILTER 10,7MHz
5110	4822 242 70665	CER. FILTER 10,7MHZ
5111	4822 158 60511	AM-IF FILTER 450kHz
5112	4822 157 70302	AM-IF FILTER 450kHz
5114	4822 157 71637	AM-AFC FILTER 450KHZ
5115	4822 157 71636	ANTI-BIRDY FILTER
5120	4822 242 82065	CER. DISCRIMINATOR
5121	4822 242 81021	QUARTZ 75kHz
5122	4822 157 60517	RF-COIL AM
5123	4822 157 60517	RF-COIL AM

RESISTORS

3125	4822 116 83864	10k	5%	0,5W
3128	4822 116 52256	2k2	5%	0,16W
3142	4822 100 11163	TRIMPOT. 100K LIN.		
3154	4822 116 52215	220R	5%	0,16W
3155	4822 116 52219	330R	5%	0,5W
3158	4822 116 52224	470R	5%	0,5W
3159	4822 116 52224	470R	5%	0,5W
3160	4822 116 52224	470R	5%	0,5W
3161	4822 116 52224	470R	5%	0,5W
3164	4822 052 10478	4R7	5%	NFR
3167	4822 116 52215	220R	5%	0,16W

CHIP RESISTORS

3102	4822 051 20224	220k	5%	0,1W
3103	4822 051 20184	180k	5%	0,1W
3104	4822 051 10102	1k	2%	0,25W
3107	4822 051 20829	82R	5%	0,1W
3108	4822 051 20222	2k2	5%	0,1W
3109	4822 051 20222	2k2	5%	0,1W
3123	4822 051 10008	CHIP JUMPER 1206		
3124	4822 051 10008	CHIP JUMPER 1206		
3129	4822 051 20008	CHIP JUMPER 0805		
3130	4822 051 10008	CHIP JUMPER 1206		

CHIP RESISTORS

3131	4822 051 10008	CHIP JUMPER 1206		
3132	4822 051 20008	CHIP JUMPER 0805		
3134	4822 051 20223	22k	5%	0,1W
3137	4822 051 20103	10k	5%	0,1W
3140	4822 051 20331	330R	5%	0,1W
3141	4822 051 20563	56k	5%	0,1W
3143	4822 051 20223	22k	5%	0,1W
3144	4822 051 10102	1k	2%	0,25W
3145	4822 051 20222	2k2	5%	0,1W
3146	4822 051 20479	47R	5%	0,1W
3150	4822 051 20472	4k7	5%	0,1W
3151	4822 051 20683	68k	5%	0,1W
3152	4822 051 20471	470R	5%	0,1W
3153	4822 051 20471	470R	5%	0,1W
3162	4822 051 20154	150k	5%	0,1W
3163	4822 051 10008	CHIP JUMPER 1206		
3169	4822 051 20008	CHIP JUMPER 0805		
3172	4822 051 10008	CHIP JUMPER 1206		
3173	4822 051 10008	CHIP JUMPER 1206		
3181	4822 051 10008	CHIP JUMPER 1206		
3183	4822 051 10008	CHIP JUMPER 1206		
3184	4822 051 10008	CHIP JUMPER 1206		
3185	4822 051 10008	CHIP JUMPER 1206		
3186	4822 051 10102	1k	2%	0,25W
3188	4822 051 10008	CHIP JUMPER 1206		
3191	4822 051 20008	CHIP JUMPER 0805		
3192	4822 051 20008	CHIP JUMPER 0805		
3197	4822 051 20472	4k7	5%	0,1W

CAPACITORS

2102	4822 124 40433	47µF	20%	25V
2106	4822 125 60102	30pF		VARIABLE
2107	4822 121 51252	470nF	5%	63V
2123	4822 121 51254	390pF	1%	400V
2125	4822 121 51381	560pF	1%	400V
2128	4822 124 41579	10µF	20%	50V
2129	4822 124 40242	1µF	20%	63V
2130	4822 126 11585	22nF	20%	50V
2133	4822 124 40242	1µF	20%	63V
2138	4822 124 41576	2,2µF	20%	50V
2140	4822 121 51252	470nF	5%	63V
2144	4822 124 40242	1µF	20%	63V
2162	4822 124 41596	22µF	20%	50V

CHIP CAPACITORS

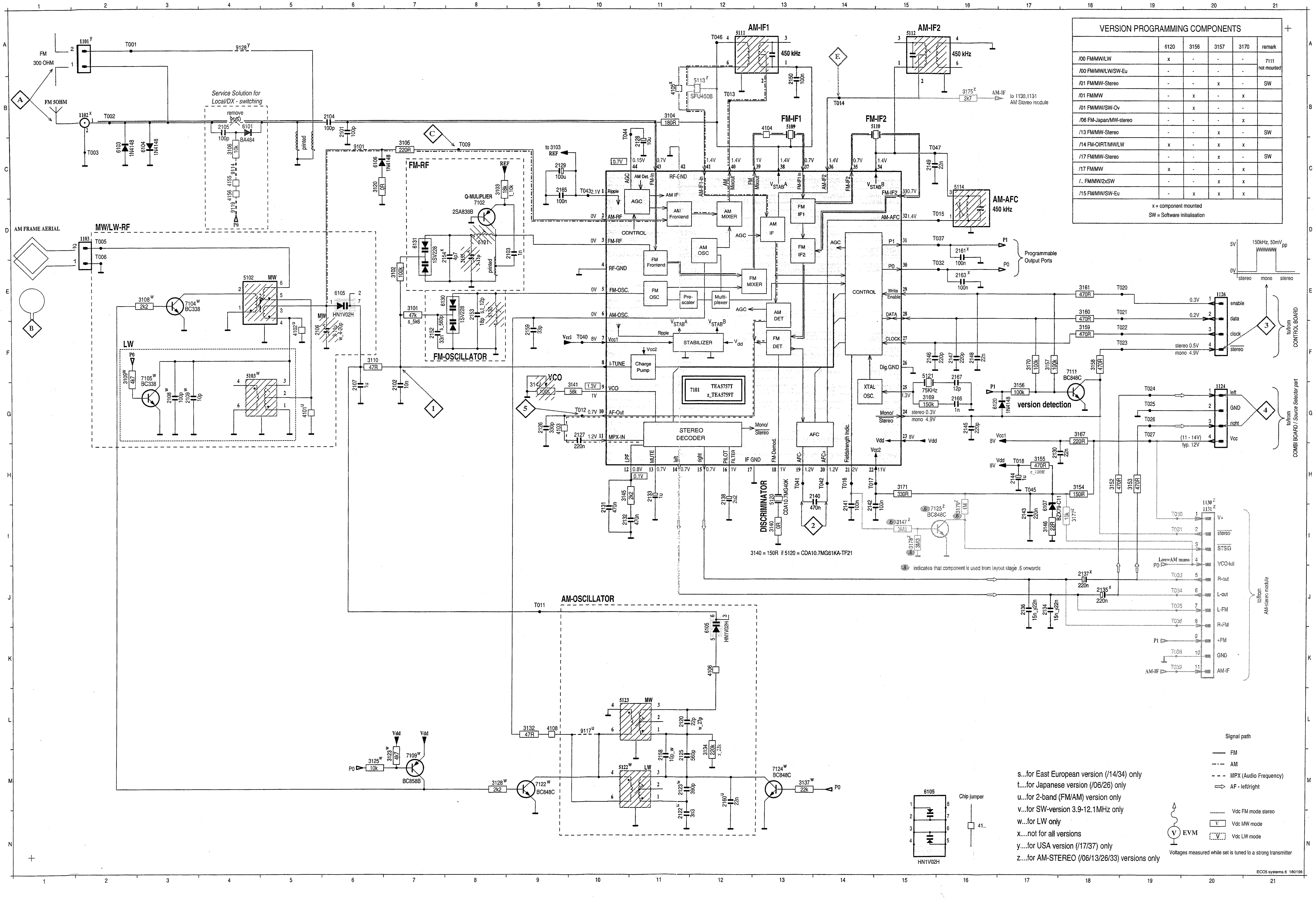
2108	4822 122 33515	82pF	5%	50V
2109	5322 122 31946	27pF	5%	50V
2120	5322 122 32659	33pF	5%	50V
2122	5322 126 10465	3,9nF	10%	63V
2127	4822 122 32927	220nF	10%	63V
2131	4822 122 33325	470nF	20%	50V
2132	4822 122 33325	470nF	20%	50V
2134	4822 122 33128	15nF	10%	63V
2135	4822 122 32927	220nF	10%	63V
2136	4822 122 33128	15nF	10%	63V
2137	4822 122 32927	220nF	10%	63V
2141	4822 122 31947	100nF	20%	50V
2142	4822 122 31947	100nF	20%	50V
2143	4822 122 32927	220nF	10%	63V
2145	4822 122 33575	220pF	5%	50V
2147	4822 122 33575	220pF	5%	50V

ELECTRICAL PARTSLIST TUNER 95 BOARD

CHIP CAPACITORS

2148	4822 122 33575	220pF	5%	50V
2150	4822 122 31947	100nF	20%	50V
2158	4822 122 31947	100nF	20%	50V
2160	4822 122 32139	12pF	5%	63V
2161	5322 122 34123	1nF	10%	50V

TUNER BOARD ECO5 / Systems


FM 300 OHM
FM 50OHM
AM FRAME AERIAL
MW/LW-RF
LW
MW
Service Solution for Local/DX - switching
FM-RF
FM-OSCILLATOR
VCO
AM-OSCILLATOR
AM-IF1
AM-IF2
FM-IF1
FM-IF2
AM-AFC 450 kHz
DISCRIMINATOR
TEA5757T
z_TEA5759T
STEREO DECODER
CONTROL
STABILIZER
version detection
Programmable Output Ports
to/from CONTROL BOARD
to/from COMBI BOARD / Source Selector part
to/from AM-stereo module
3140 = 150R if 5120 = CDA10.7MG61KA-TF21
indicates that component is used from layout stage .5 onwards
ECO5 systems.6 180196

VERSION PROGRAMMING COMPONENTS	6120	3156	3157	3170	remark
/00 FM/MW/LW	x	-	-	-	7111 not mounted
/00 FM/MW/LW/SW-Eu	-	-	-	-	
/01 FM/MW-Stereo	-	-	x	-	SW
/01 FM/MW	-	x	-	x	
/01 FM/MW/SW-Ov	-	x	-	-	
/06 FM-Japan/MW-stereo	-	-	-	x	
/13 FM/MW-Stereo	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/17 FM/MW-Stereo	-	-	x	-	SW
/17 FM/MW	x	-	-	x	
/.. FM/MW/2xSW	-	-	x	x	
/15 FM/MW/SW-Eu	-	x	x	x	

x = component mounted
SW = Software initialisation

s...for East European version (/14/34) only
t....for Japanese version (/06/26) only
u...for 2-band (FM/AM) version only
v...for SW-version 3.9-12.1MHz only
w...for LW only
x....not for all versions
y....for USA version (/17/37) only
z....for AM-STEREO (/06/13/26/33) versions only

Signal path
- FM
- AM
- MPX (Audio Frequency)
- AF - left/right

Vdc FM mode stereo
Vdc MW mode
Vdc LW mode

Voltages measured while set is tuned to a strong transmitter

1101	A 1
1102	B 2
1103	D 2
1124	G20
1126	E20
1130	I20
1131	I20
2101	C 6
2102	G 7
2103	D 9
2104	B 6
2106	F 5
2107	G 6
2108	G 3
2109	G 3
2120	L11
2122	N11
2123	M11
2125	M11
2126	G 9
2127	G10
2128	C11
2129	C 9
2130	H17
2131	I10
2132	I10
2133	H11
2134	J17
2135	J18
2136	J17
2137	J18
2138	H12
2140	H14
2141	H14
2142	H14
2143	I17
2144	H17
2145	G16
2146	F15
2147	F16
2148	F16
2149	C15
2150	B13
2152	F 7
2153	E 8
2154	E 7
2155	D 8
2158	M11
2159	F 9
2160	M12
2161	D16
2163	E16
2165	C 9
2166	G16
2167	F16
3101	E 7
3102	E 7
3103	C 8
3104	B11
3105	C 7
3108	E 3
3109	F 2
3110	F 6
3120	C 6
3123	M 7
3125	M 6
3128	M 8
3132	L 9
3134	M12
3137	M13
3140	I13
3141	G10
3142	G 9
3145	H10
3146	I17
3147	I15
3152	H18
3153	H19
3154	H18
3155	H17
3156	G17
3157	F17
3158	F18
3159	F18
3160	E18
3161	E18
3167	G18
3169	G15
3170	F17
3171	H15
3175	B16
3177	I18
3178	I15
3179	I16
4101	G 5
4102	F 5
4103	G 9
4104	B13
4105	B11
4106	K12
4108	L 9
5102	E 4
5103	F 4
5109	B13
5110	B14
5111	A13
5112	A15
5113	B12
5114	C16
5120	H13
5121	F15
5122	M11
5123	L11
5130	E 8
5131	D 8
6103	C 2
6104	C 3
6105	K12
6105	E 6
6106	C 6
6107	H17
6120	G16
6130	E 7
6131	D 7
7101	G11
7102	D 8
7104	E 3
7105	F 2
7109	M 7
7111	F18
7122	M 9
7124	M13
7125	I16
9100	B 4
9101	C 6
9117	L10
9128	A 4

MISCELLANEOUS

1101	4822 267 31505	SOCKET 2P CLICKFIT (/14)
1102	4822 267 10283	SOCKET COAXIAL 75Ω

CAPACITORS

2101	5322 122 32531	100pF 5% 50V
2102	4822 122 33177	10nF 20% 50V
2103	5322 122 34123	1nF 10% 50V
2104	4822 122 33195	100pF 10% 50V
2106	4822 125 50355	TRIMCAP. 4-20pF (/00,/17)
2106	4822 125 60101	TRIMCAP. 3-11pF (/01,/14)
2107	4822 121 51319	1µF 10% 63V
2108	5322 122 32531	100pF 5% 50V (/00,/17)
2109	5322 122 32448	10pF 5% 50V (/00,/17)
2120	5322 122 31946	27pF 5% 63V (/00,/17)
2120	5322 122 32658	22pF 5% 50V (/01,/14)
2122	4822 122 33891	3.3nF 10% 63V (/00,/17)
2123	4822 121 51254	390pF 1% 400V (/00,/17)
2125	4822 121 51381	560pF 5% 400V
2126	5322 122 31863	330pF 5% 50V
2127	4822 122 32927	220nF +80-20% 50V
2128	4822 124 41579	10µF 20% 50V
2129	4822 124 41584	100µF 20% 10V
2130	4822 126 11585	22nF +80-20% 25V
2131	4822 122 33325	470nF 16V
2132	4822 122 33325	470nF 16V
2133	4822 124 40242	1µF 20% 63V
2134	4822 122 33128	15nF 10% 63V
2134	5322 122 32654	22nF 10% 63V (/14)
2135	4822 124 40746	0.22µF 20% 63V
2136	4822 122 33128	15nF 10% 63V
2136	5322 122 32654	22nF 10% 63V (/14)
2137	4822 124 40746	0.22µF 20% 63V
2138	4822 124 41576	2.2µF 20% 50V
2140	4822 121 51252	470nF 5% 63V
2141	4822 122 31947	100nF 20% 63V
2142	4822 122 31947	100nF 20% 63V
2143	4822 122 32927	220nF +80-20% 50V
2144	4822 124 40242	1µF 20% 63V
2145	4822 122 33575	220pF 5% 50V
2146	4822 122 33575	220pF 5% 50V
2147	4822 122 33575	220pF 5% 50V
2148	4822 126 11585	22nF +80-20% 25V
2149	5322 122 32654	22nF 10% 63V
2150	4822 122 31947	100nF 20% 63V

CAPACITORS

2152	5322 116 80853	560pF 5% 63V (/17)
2152	4822 122 33342	33nF 10% 63V
2153	4822 122 32139	12pF 2% 63V (/17)
2153	4822 126 13689	18pF 1% 63V
2155	4822 125 60101	3P0-11pF N45 100V
2158	5322 122 32448	10pF 5% 50V (/00,/17)
2159	5322 122 32659	33pF 5% 50V
2160	5322 122 32654	22nF 10% 63V (/01,/14)
2161	4822 122 31947	100nF 20% 63V (/00,/17)
2163	4822 122 31947	100nF 20% 63V (/00,/17)
2165	4822 122 31947	100nF 20% 63V
2166	5322 122 34123	1nF 10% 50V
2167	4822 122 32139	12pF 2% 63V

RESISTORS

3101	4822 051 20562	5k6 5% 0.1W (/17)
3101	4822 051 20473	47k 5% 0.1W
3102	4822 051 20104	100k 5% 0.1W
3103	4822 051 20183	18k 5% 0.1W
3104	4822 051 20181	180Ω 5% 0.1W
3105	4822 116 52215	220Ω 5% 0.5W
3108	4822 051 20222	2k2 5% 0.1W (/00,/17)
3109	4822 051 20472	4k7 5% 0.1W (/00,/17)
3110	4822 116 52195	47Ω 5% 0.5W
3123	4822 051 20472	4k7 5% 0.1W (/00,/17)
3125	4822 051 20103	10k 5% 0.1W (/00,/17)
3128	4822 051 20222	2k2 5% 0.1W (/00,/17)
3132	4822 116 52195	47Ω 5% 0.5W
3134	4822 051 20224	220k 5% 0.1W
3137	4822 051 20223	22k 5% 0.1W (/00,/17)
3140	4822 051 20008	0Ω Jumper
3140	4822 117 10353	150Ω 1% 0.1W
3141	4822 051 20563	56k 5% 0.1W
3142	4822 100 11163	100k 30%LIN 0.1W
3145	4822 051 20222	2k2 5% 0.1W
3146	4822 051 20229	22Ω 5% 0.1W
3152	4822 116 52224	470Ω 5% 0.5W
3153	4822 051 20471	470Ω 5% 0.1W
3154	4822 116 52211	150Ω 5% 0.5W
3155	4822 051 20471	470Ω 5% 0.1W
3156	4822 051 20104	100k 5% 0.1W (/01)
3157	4822 116 52234	100k 5% 0.5W (/17)
3158	4822 116 52224	470Ω 5% 0.5W
3159	4822 116 52224	470Ω 5% 0.5W

RESISTORS

3160	4822 116 52224	470Ω 5% 0.5W
3161	4822 116 52224	470Ω 5% 0.5W
3167	4822 051 20221	220Ω 5% 0.1W
3169	4822 051 20154	150k 5% 0.1W
3170	4822 116 52234	100k 5% 0.5W (not for /00)
3171	4822 116 52219	330Ω 5% 0.5W

JUMPER

4101	4822 051 20008	0Ω Jumper (/01,/14)
4102	4822 051 20008	0Ω Jumper (/01,/14)
4103	4822 051 20008	0Ω Jumper
4104	4822 051 20008	0Ω Jumper
4105	4822 051 20008	0Ω Jumper
4106	4822 051 20008	0Ω Jumper
4108	4822 051 20008	0Ω Jumper
4111	4822 051 20008	0Ω Jumper
4120	4822 051 20008	0Ω Jumper
4150	4822 051 10008	0Ω 5% 0.25W
4151	4822 051 20008	0Ω Jumper (/00,/17)
4152	4822 051 10008	0Ω 5% 0.25W
4153	4822 051 10008	0Ω 5% 0.25W
4154	4822 051 10008	0Ω 5% 0.25W
4155	4822 051 10008	0Ω 5% 0.25W (/00,/17)
4156	4822 051 20008	0Ω Jumper (/00,/17)
4157	4822 051 10008	0Ω 5% 0.25W
4158	4822 051 10008	0Ω 5% 0.25W
4159	4822 051 10008	0Ω 5% 0.25W

COILS

5102	4822 157 71634	RF-COIL MW
5103	4822 157 71635	RF-COIL LW
5122	4822 157 60517	OSC. COIL LW
5123	4822 157 60517	OSC. COIL MW
5130	4822 156 30947	RF-COIL 1.5 T
5131	4822 156 30947	RF-COIL 1.5 T

CRYSTALS/FILTERS

5109	4822 242 70665	Ceram Filter 10.7MHZ
5110	4822 242 70665	Ceram Filter 10.7MHZ
5111	4822 158 60511	AM-IF Filter 450KHZ
5112	4822 157 70302	AM-IF Filter 450KHZ
5114	4822 157 71637	AM-AFC Filter 450KHZ
5120	4822 242 82065	CER.DISCRIMINATOR
5120	4822 242 10251	CER.DISCRIMINATOR

CRYSTALS/FILTERS

5121	4822 242 10261	QUARTZ 75KHZ

DIODES

6103	4822 130 30621	1N4148
6104	4822 130 30621	1N4148
6105	4822 130 83075	HN1V02H. VARICAP.
6106	4822 130 30621	1N4148
6107	4822 130 34488	BZX79-C11
6120	4822 130 30621	1N4148
6130	4822 130 82833	1SV228
6131	4822 130 82833	1SV228

INTERGRATED CIRCUITS

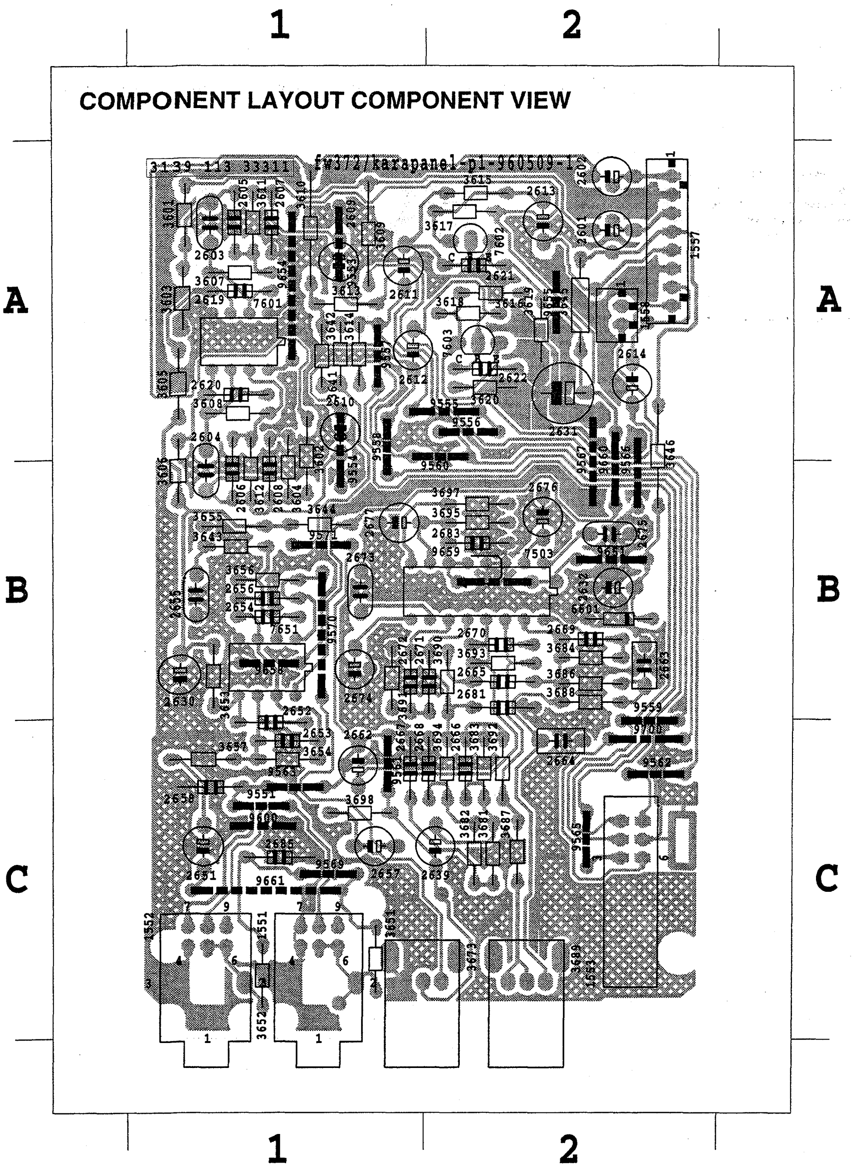
7101	4822 209 90924	TEA5757H/V1.RADIO IC

TRANSISTORS

7102	4822 130 60093	2SA838B
7104	5322 130 44779	BC338-40
7105	5322 130 44779	BC338-40
7109	5322 130 41983	BC858B
7111	5322 130 42136	BC848C
7122	5322 130 42136	BC848C
7124	5322 130 42136	BC848C

KARAOKE BOARD

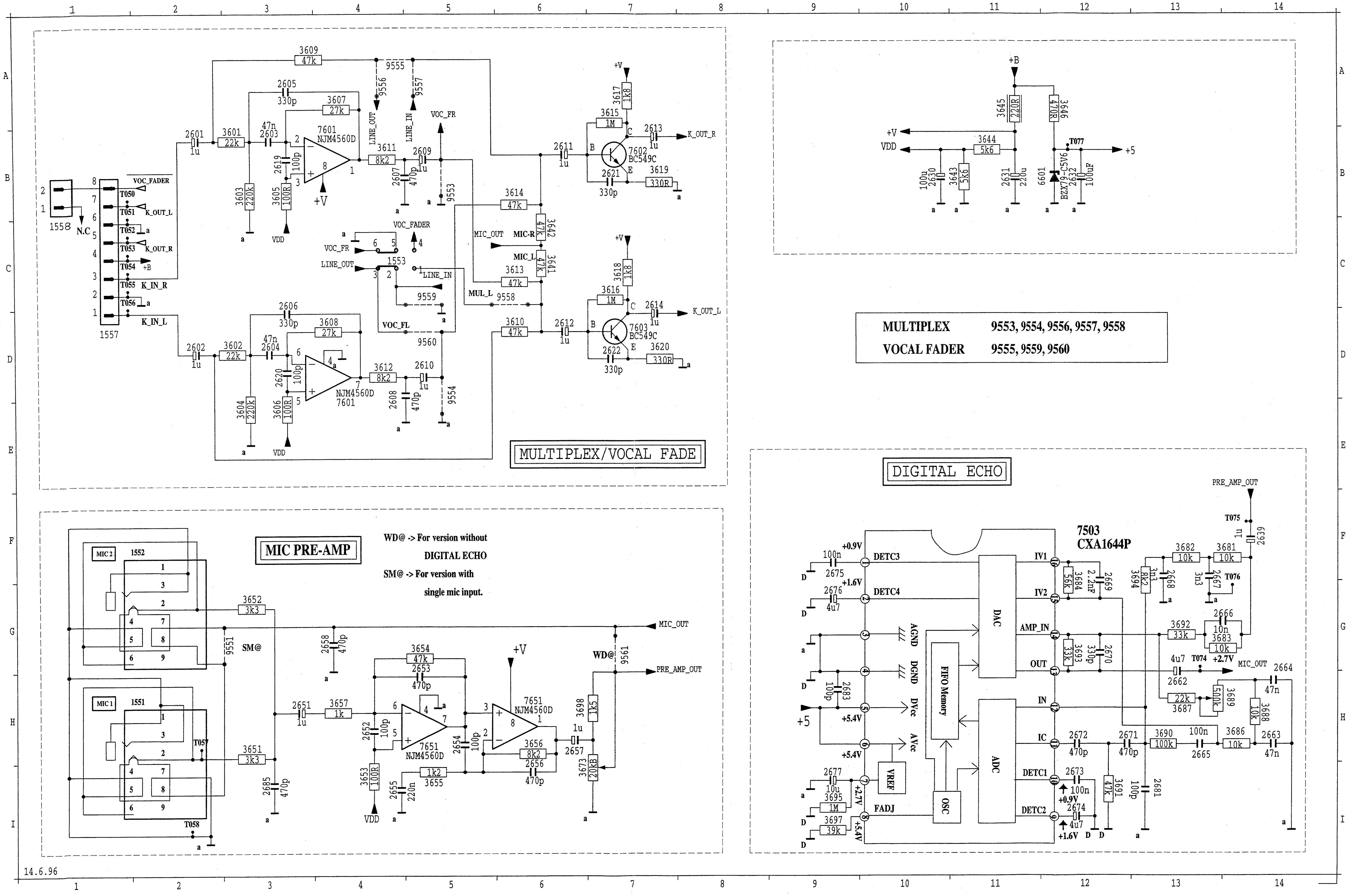
Component Layout .... 8 - 2
Circuit Diagram .... 8 - 3
Partlist .... 8 - 4



COMPONENT LAYOUT COMPONENT VIEW

1551	C	1	2681	B	2	3697	B	2
1552	C	1	2683	B	2	3698	C	1
1553	C	2	2685	C	1	6601	B	2
1557	A	2	3601	A	1	7503	B	2
1558	A	2	3602	A	1	7601	A	1
2601	A	2	3603	A	1	7602	A	2
2602	A	2	3604	B	1	7603	A	2
2603	A	1	3605	A	1	7651	B	1
2604	B	1	3606	B	1	9551	C	1
2605	A	1	3607	A	1	9553	A	1
2606	B	1	3608	A	1	9554	A	1
2607	A	1	3609	A	1	9555	A	2
2608	B	1	3610	A	1	9556	A	2
2609	A	1	3611	A	1	9557	A	1
2610	A	1	3612	B	1	9558	A	1
2611	A	1	3613	A	1	9559	C	2
2612	A	1	3614	A	1	9560	A	2
2613	A	2	3615	A	2	9561	C	1
2614	A	2	3616	A	2	9562	C	2
2619	A	1	3617	A	2	9563	C	1
2620	A	1	3618	A	2	9565	C	2
2621	A	2	3619	A	2	9566	B	2
2622	A	2	3620	A	2	9567	B	2
2630	B	1	3641	A	1	9569	C	1
2631	A	2	3642	A	1	9570	B	1
2632	B	2	3643	B	1	9571	B	1
2639	C	2	3644	B	1	9600	C	1
2651	C	1	3645	A	2	9651	B	2
2652	C	1	3646	A	2	9654	A	1
2653	C	1	3651	C	1	9655	A	2
2654	B	1	3652	C	1	9658	B	1
2655	B	1	3653	B	1	9659	B	2
2656	B	1	3654	C	1	9660	B	2
2657	C	1	3655	B	1	9661	C	1
2658	C	1	3656	B	1	9700	C	2
2662	C	1	3657	C	1			
2663	B	2	3673	C	1			
2664	C	2	3681	C	2			
2665	B	2	3682	C	2			
2666	C	2	3683	C	2			
2667	C	1	3684	B	2			
2668	C	2	3686	B	2			
2669	B	2	3687	C	2			
2670	B	2	3688	B	2			
2671	B	2	3689	C	2			
2672	B	1	3690	B	2			
2673	B	1	3691	B	1			
2674	B	1	3692	C	2			
2675	B	2	3693	B	2			
2676	B	2	3694	C	2			
2677	B	1	3695	B	2			

KARAOKE CIRCUIT


MULTIPLEX/VOCAL FADE
MIC PRE-AMP
DIGITAL ECHO
WD@ -> For version without DIGITAL ECHO
SM@ -> For version with single mic input.
MULTIPLEX 9553, 9554, 9556, 9557, 9558
VOCAL FADER 9555, 9559, 9560
7601 NJM4560D
7602 BC549C
7603 BC549C
7651 NJM4560D
7503 CXA1644P
1557
1558
1553
MIC 1 1551
MIC 2 1552
K_OUT_R
K_OUT_L
K_IN_R
K_IN_L
VOC_FADER
LINE_OUT
LINE_IN
VOC_FR
VOC_FL
MIC_OUT
MIC-R
MIC_L
MUL_L
PRE_AMP_OUT
+V
VDD
+B
+5
DETC3
DETC4
AGND
DGND
DVcc
AVcc
FADJ
IV1
IV2
AMP_IN
OUT
IN
IC
DETC1
DETC2
DAC
ADC
FIFO Memory
VREF
OSC
14.6.96

1551	H 2
1552	F 2
1553	C 4
1557	D 1
1558	B 1
2601	B 2
2602	D 2
2603	B 3
2604	D 3
2605	A 3
2606	C 3
2607	B 4
2608	D 4
2609	B 5
2610	D 5
2611	B 6
2612	D 6
2613	B 7
2614	C 7
2619	B 3
2620	D 3
2621	B 7
2622	D 7
2630	B10
2631	B11
2632	B12
2639	F14
2651	H 4
2652	H 4
2653	G 5
2654	H 5
2655	I 4
2656	I 6
2657	H 6
2662	H13
2663	H14
2664	G14
2665	H13
2666	G14
2667	F13
2668	F13
2669	G12
2670	G12
2671	H12
2672	H12
2673	I12
2674	I12
2675	F 9
2676	G 9
2677	I 9
2681	I13
2683	H 9
2685	I 3
3601	B 3
3602	D 3
3603	B 3
3604	E 3
3605	B 3
3606	E 3
3607	A 4
3608	D 4
3609	A 3
3610	D 6
3611	B 4
3612	D 4
3613	C 6
3614	B 6
3615	A 7
3616	C 7
3617	A 7
3618	C 7
3619	B 7
3620	D 7
3641	C 6
3642	C 6
3643	B10
3644	B11
3645	A11
3646	B12
3651	H 3
3652	G 3
3653	I 4
3654	G 5
3655	I 5
3656	H 6
3673	I 6
3681	F14
3682	F13
3683	G13
3684	G12
3686	H14
3687	H13
3688	H14
3689	H14
3690	H13
3691	I12
3692	G13
3693	G12
3694	F12
3695	I 9
3697	I 9
3698	H 6
5653	H 3
6601	B12
7503	F12
7601	A 4
7601	D 4
7602	B 7
7603	D 7
7651	H 6
7651	H 5
9551	G 2
9553	B 5
9554	D 5
9555	A 4
9556	A 4
9557	A 5
9558	C 6
9559	C 5
9560	D 5
9561	G 7

KARAOKE BOARD PARTSLIST

MISCELLANEOUS

1551	4822 267 4089 8	Phone Jack
1552	4822 267 4089 8	Phone Jack
1553	4822 276 1257 1	Switch

CAPACITOR

2601	4822 124 40242	1µF 20% 63V
2602	4822 124 40242	1µF 20% 63V
2603	4822 121 43526	47nF 5% 250V
2604	4822 121 43526	47nF 5% 250V
2605	4822 126 12787	330pF 10% Y5V 50V
2606	4822 126 12787	330pF 10% Y5V 50V
2607	4822 122 33519	470pF 10% 50V
2608	4822 122 33519	470pF 10% 50V
2609	4822 124 40242	1µF 20% 63V
2610	4822 124 40242	1µF 20% 63V
2611	4822 124 40242	1µF 20% 63V
2612	4822 124 40242	1µF 20% 63V
2613	4822 124 40242	1µF 20% 63V
2614	4822 124 40242	1µF 20% 63V
2619	4822 122 33195	100pF 10% 50V
2620	4822 122 33195	100pF 10% 50V
2621	4822 126 12787	330pF 10% Y5V 50V
2622	4822 126 12787	330pF 10% Y5V 50V
2630	4822 124 41584	100µF 20% 10V
2631	4822 124 80144	220µF 20% 10V
2632	4822 124 41584	100µF 20% 10V
2639	4822 124 40242	1µF 20% 63V
2651	4822 124 40242	1µF 20% 63V
2652	4822 122 33195	100pF 10% 50V
2653	4822 122 33519	470pF 10% 50V
2654	4822 122 33195	100pF 10% 50V
2655	4822 121 42408	220nF 5% 63V
2656	4822 122 33519	470pF 10% 50V
2657	4822 124 40242	1µF 20% 63V
2658	4822 122 33519	470pF 10% 50V
2662	4822 124 40246	4.7µF 20% 63V
2663	4822 121 43526	47nF 5% 250V
2664	4822 121 43526	47nF 5% 250V
2665	4822 126 12882	100nF +80-20% 50V
2666	4822 121 51387	10nF 20% 16V

CAPACITOR

2667	4822 122 10577	3.3nF 10% 16V
2668	4822 122 10577	3.3nF 10% 16V
2669	4822 126 12339	2.2nF 10% Y5R
2670	4822 126 12787	330pF 10% Y5V 50V
2671	4822 122 33519	470pF 10% 50V
2672	4822 122 33519	470pF 10% 50V
2673	5322 121 42386	100nF 5% 63V
2674	4822 124 40246	4.7µF 20% 63V
2675	5322 121 42386	100nF 5% 63V
2676	4822 124 40246	4.7µF 20% 63V
2677	4822 124 41579	10µF 20% 50V
2681	4822 122 33195	100pF 10% 50V
2683	4822 122 33195	100pF 10% 50V
2685	4822 122 33519	470pF 10% 50V

RESISTOR

3601	4822 116 52257	22k 5% 0.5W
3602	4822 116 52257	22k 5% 0.5W
3603	4822 116 83874	220k 5% 0.5W
3604	4822 116 83874	220k 5% 0.5W
3605	4822 116 52175	100Ω 5% 0.5W
3606	4822 116 52175	100Ω 5% 0.5W
3607	4822 116 52264	27k 5% 0.5W
3608	4822 116 52264	27k 5% 0.5W
3609	4822 116 52284	47k 5% 0.5W
3610	4822 116 52284	47k 5% 0.5W
3611	4822 116 52303	8k2 5% 0.5W
3612	4822 116 52303	8k2 5% 0.5W
3613	4822 116 52284	47k 5% 0.5W
3614	4822 116 52284	47k 5% 0.5W
3615	4822 116 52235	1M 5% 0.5W
3616	4822 116 52235	1M 5% 0.5W
3617	4822 116 52249	1k8 5% 0.5W
3618	4822 116 52249	1k8 5% 0.5W
3619	4822 116 52219	330Ω 5% 0.5W
3620	4822 116 52219	330Ω 5% 0.5W
3641	4822 116 52284	47k 5% 0.5W
3642	4822 116 52284	47k 5% 0.5W
3643	4822 116 52289	5k6 5% 0.5W
3644	4822 116 52289	5k6 5% 0.5W
3645	4822 052 10221	220Ω 5% 0.33W

RESISTOR

3646	4822 116 52224	470Ω 5% 0.5W
3651	4822 116 52269	3k3 5% 0.5W
3652	4822 116 52269	3k3 5% 0.5W
3653	4822 116 52175	100Ω 5% 0.5W
3654	4822 116 52284	47k 5% 0.5W
3655	4822 116 52207	1k2 5% 0.5W
3656	4822 116 52303	8k2 5% 0.5W
3657	4822 050 11002	1k 5% 0.5W
3673	4822 101 21204	20kA Pot meter
3681	4822 116 83864	10k 5% 0.5W
3682	4822 116 83864	10k 5% 0.5W
3683	4822 116 83864	10k 5% 0.5W
3684	4822 116 52291	56k 5% 0.5W
3686	4822 116 83864	10k 5% 0.5W
3687	4822 116 52284	47k 5% 0.5W
3688	4822 116 83864	10k 5% 0.5W
3689	4822 101 11326	500k
3690	4822 116 52234	100k 5% 0.5W
3691	4822 116 52284	47k 5% 0.5W
3692	4822 116 52271	33k 5% 0.5W
3693	4822 116 52271	33k 5% 0.5W
3694	4822 116 52303	8k2 5% 0.5W
3695	4822 116 52235	1M 5% 0.5W
3697	4822 116 83882	39k 5% 0.5W
3698	4822 116 52243	1k5 5% 0.5W

TRANSISTOR

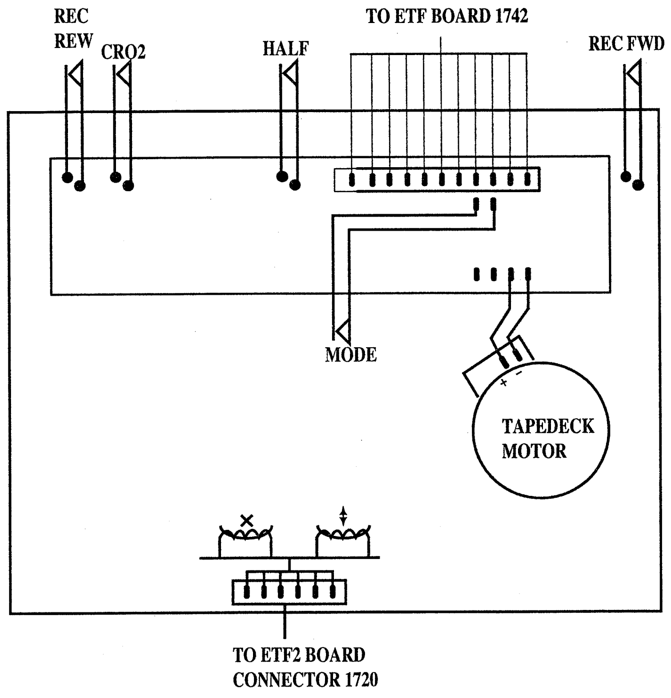
6601	4822 130 34173	BZX79-C5V6

INTERGRATED CIRCUIT

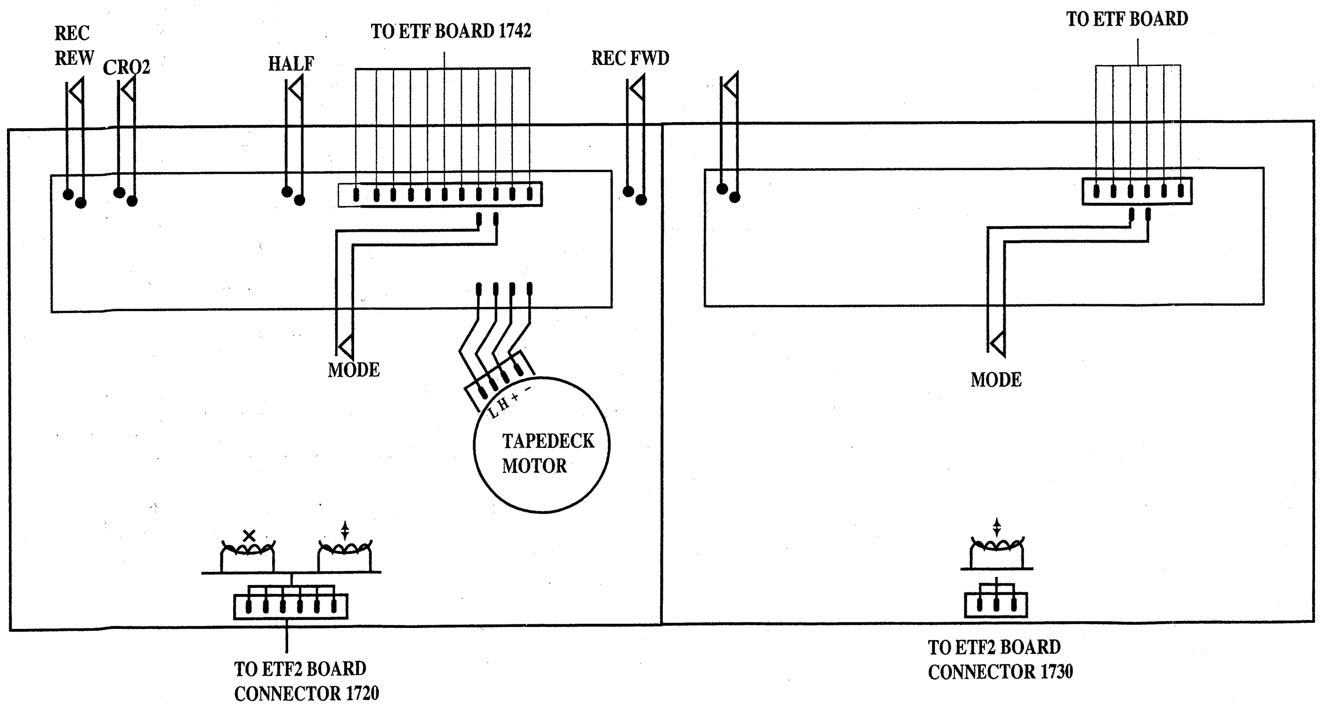
7503	4822 209 33717	CXA1644P
7601	4822 209 83274	NJM4560D
7602	4822 130 44246	BC549C
7603	4822 130 44246	BC549C
7651	4822 209 83274	NJM4560D

ETF2 BOARD

Tapedeck wiring (Single deck)


REC
REW
CRO2
HALF
TO ETF BOARD 1742
REC FWD
MODE
TAPEDECK
MOTOR
TO ETF2 BOARD
CONNECTOR 1720

Tapedeck wiring (Double deck)


REC
REW
CRO2
HALF
TO ETF BOARD 1742
REC FWD
TO ETF BOARD
MODE
LH + -
TAPEDECK
MOTOR
MODE
TO ETF2 BOARD
CONNECTOR 1720
TO ETF2 BOARD
CONNECTOR 1730

GENERAL DESCRIPTION

FEATURES

The ETF-2 is a family of logic controlled, electronically switched tape function modules. Each module comprises a logic controlled tape deck with attached pcb housing the tape pre-amplifier, recording and switching circuitry, and tape deck interface circuitry.

The following features are available as options:
single / double tape-deck applications
auto-reverse / single way deck options
single / double motor options for double deck
IEC I & IEC II tape types auto selection for playback & recording
Dolby B type Noise Reduction
line-in recording with pilot suppression
tape dubbing at normal & high speed (for double deck applications)
automatic recording level control
software controlled full auto reverse permutations
opto-reflector disc for counter pulses & end-of-tape (EOT) auto-stop
input for DCC deck analog playpack output

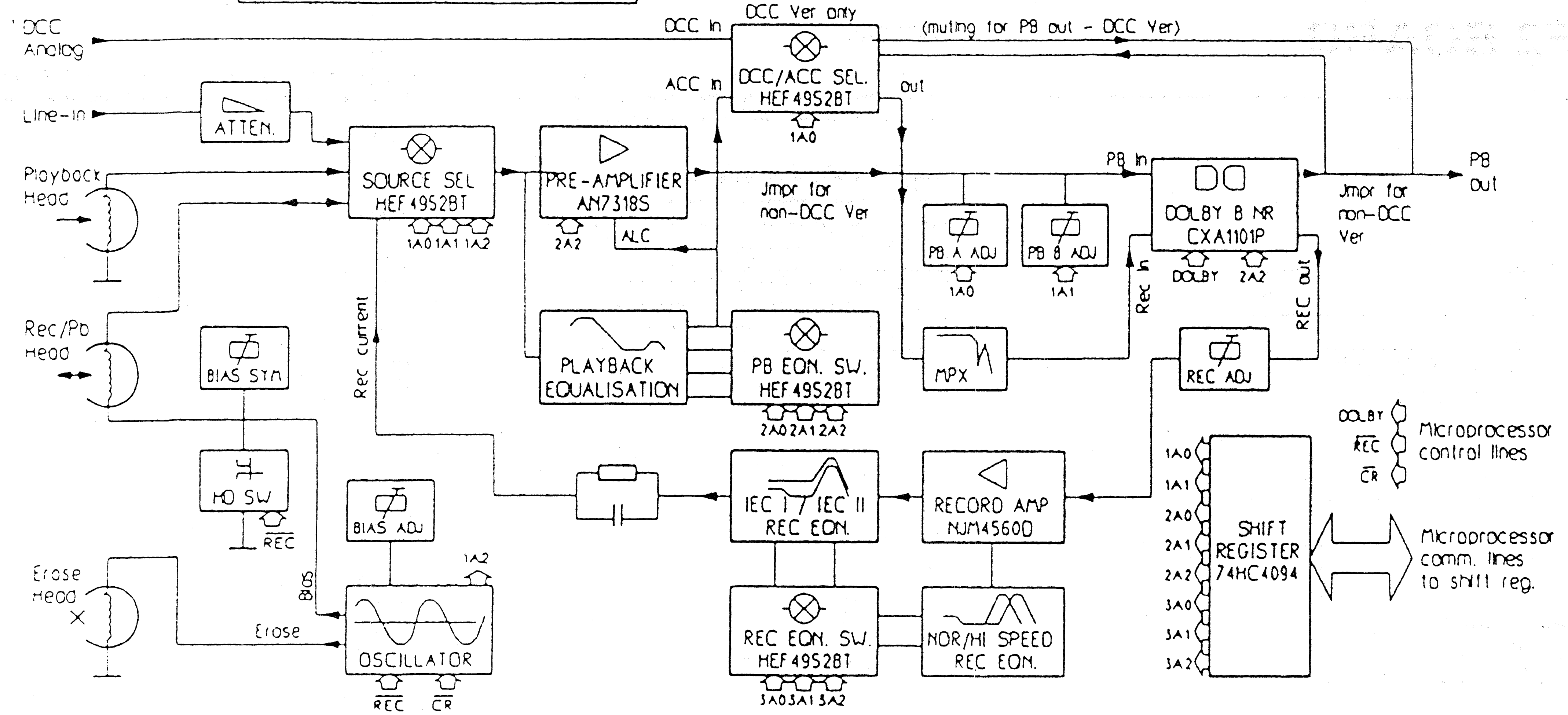
NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

Gnd x	Ground x
S/A	Sub-assy
FE	Ferro (IEC type I)
CR	Chrome (IEC type II)
NR	Noise Reduction
PB	Playback
REC	Record
NSD	Normal speed dubbing
HSD	High speed dubbing
DD	Double Deck
SD	Single Deck
SM	Single Motor
DM	Double Motor
ND	Non Dolby
DB	Dolby B

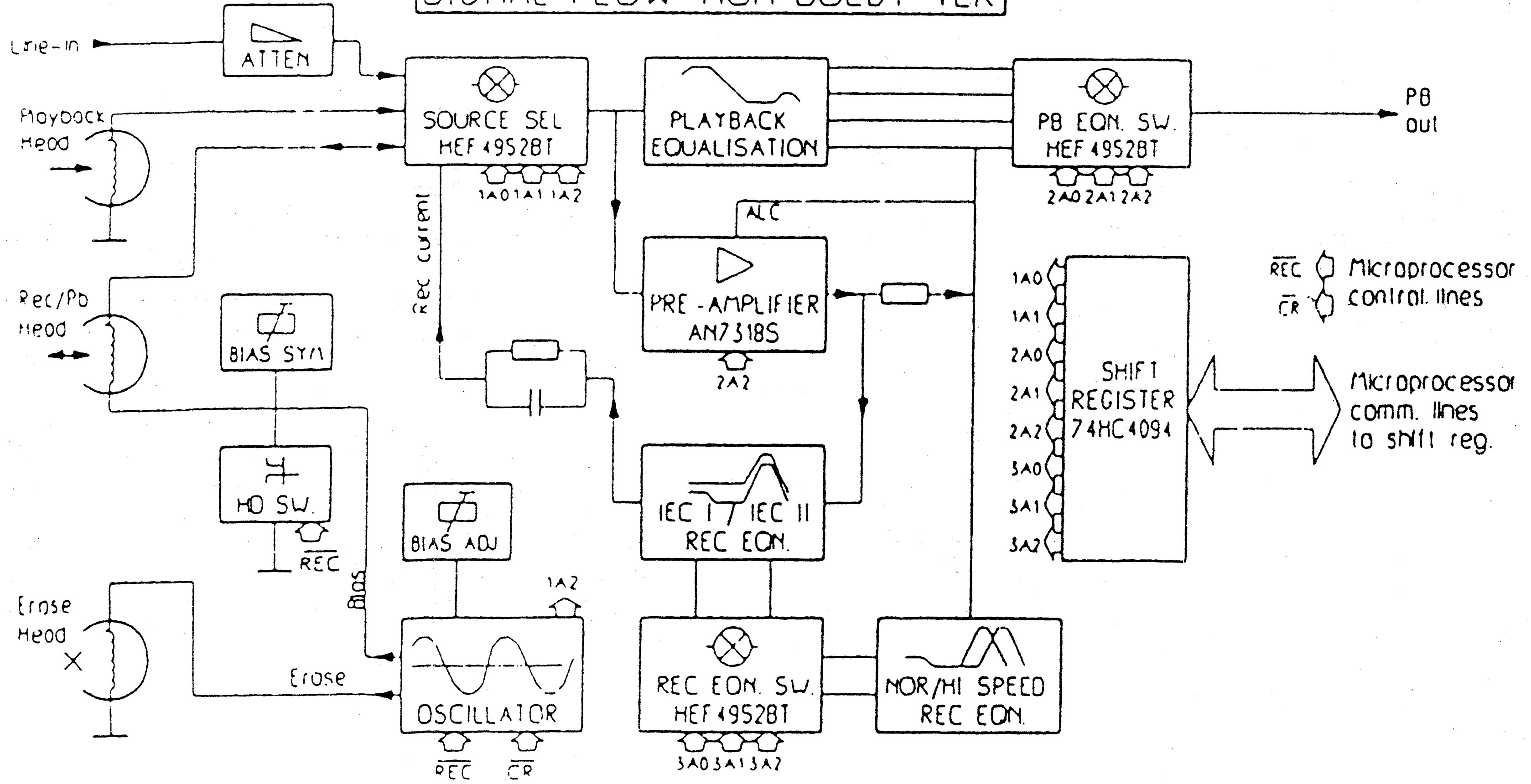
OPTIONS / VARIANTS TABLE						
MODEL	MC170 MC150				FW372	
VARIANTS	1	2	3	4	5	6
NAME	ND/SD	DB/SD	DB/SD/DCC	ND/DD/SM	DB/DD/SM	DB/DD/DM
Deck configuration	single	single	single	double	duble	double
Autoreverse	yes	yes	yes	yes	yes	yes
Motor configuration	single	single	single	single	single	double
Auto tape type selection	yes	yes	yes	yes	yes	yes
Dolby B type Noise Reduction	no	yes	yes	no	yes	yes
19 kHz pilot suppression	no	yes	yes	no	yes	yes
High speed dubbing	no	no	no	yes	yes	yes
DCC deck ACC playback input	no	no	yes	no	no	no

ETF2 BOARD

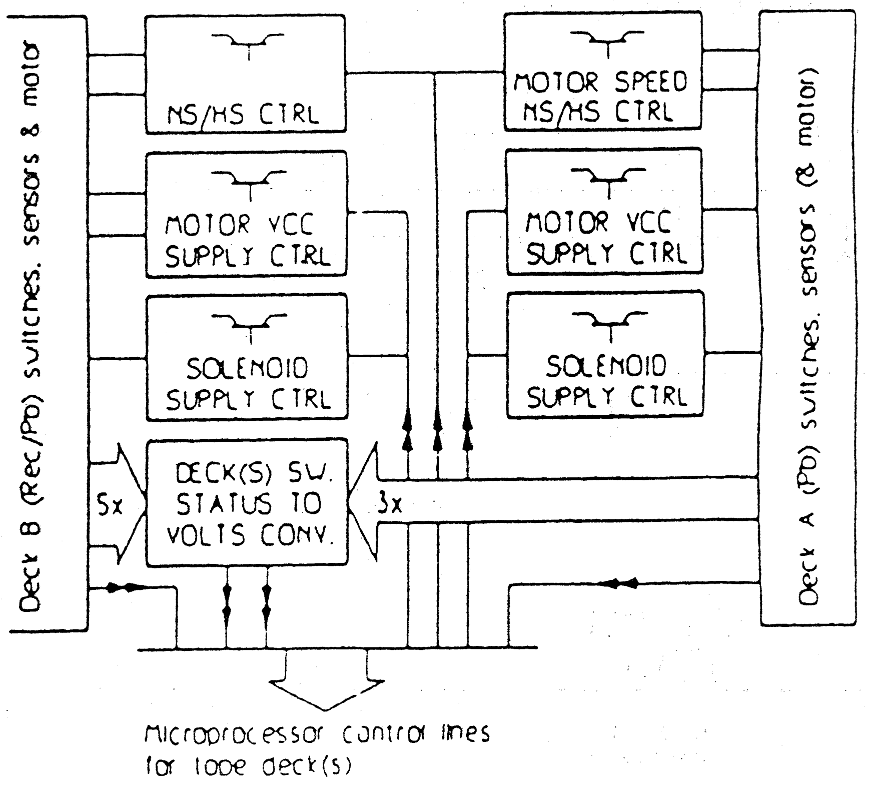
SIGNAL FLOW-DOLBY VER


DCC Analog
Line-in
ATTEN.
Playback Head
Rec/Pb Head
Erase Head
SOURCE SEL HEF4952BT
1A0 1A1 1A2
PRE-AMPLIFIER AN7318S
2A2
ALC
DCC In
ACC In
DCC Ver only
DCC/ACC SEL. HEF4952BT
1A0
out
(muting for PB out - DCC Ver)
Jmpr for non-DCC Ver
PB In
DOLBY B NR CXA1101P
DOLBY 2A2
PB out
Jmpr for non-DCC Ver
PB A ADJ
1A0
PB B ADJ
1A1
Rec In
REC out
MPX
REC ADJ
PLAYBACK EQUALISATION
PB EQN. SW. HEF4952BT
2A0 2A1 2A2
Rec current
BIAS STM
HO SW
REC
BIAS ADJ
1A2
Bias
Erase
OSCILLATOR
REC CR
IEC I / IEC II REC EQN.
RECORD AMP NJM4560D
REC EQN. SW. HEF4952BT
3A0 3A1 3A2
NOR/HI SPEED REC EQN.
1A0 1A1 2A0 2A1 2A2 3A0 3A1 3A2
SHIFT REGISTER 74HC4094
DOLBY
REC
CR
Microprocessor control lines
Microprocessor comm. lines to shift reg.

SIGNAL FLOW-NON DOLBY VER


Line-in
ATTEN.
Playback Head
Rec/Pb Head
Erase Head
SOURCE SEL HEF4952BT
1A0 1A1 1A2
PLAYBACK EQUALISATION
PB EQN. SW. HEF4952BT
2A0 2A1 2A2
PB out
Rec current
ALC
PRE-AMPLIFIER AN7318S
2A2
BIAS STM
HO SW.
REC
BIAS ADJ
1A2
Bias
Erase
OSCILLATOR
REC CR
IEC I / IEC II REC EQN.
REC EQN. SW. HEF4952BT
3A0 3A1 3A2
NOR/HI SPEED REC EQN.
1A0 1A1 2A0 2A1 2A2 3A0 3A1 3A2
SHIFT REGISTER 74HC4094
REC
CR
Microprocessor control lines
Microprocessor comm. lines to shift reg.

TAPE DECK(S) INTERFACE PART


Deck B (Rec/Pb) switches, sensors & motor
NS/HS CTRL
MOTOR VCC SUPPLY CTRL
SOLENOID SUPPLY CTRL
5x
DECK(S) SW. STATUS TO VOLTS CONV.
3x
MOTOR SPEED NS/HS CTRL
MOTOR VCC SUPPLY CTRL
SOLENOID SUPPLY CTRL
Deck A (Pb) switches, sensors (& motor)
Microprocessor control lines for tape deck(s)

CONNECTORS ASSIGNMENTS:

CONNECTOR 1701 AF SIGNAL & SUPPLY CONNECTIONS

o	1	-CMOS	Negative d.c.supply (-9V) for CMOS ICs
o	2	TAPE-L	Playback output left
o	3	TAPE-R	Playback output right
o	4	+12V	D.c. supply (+12V) for AF electronics
o	5	GND A	AF Ground
o	6	REC-L	Record input left
o	7	REC-R	Record input right

CONNECTOR 1702 CONTROL LINES FOR AF ELECTRON ***[For Non-Dolby versions only]***

o	1	STROBE	HEF4094BT shift register Strobe line	
o	2	DATA	HEF4094BT shift register Data line	
o	3	CLK	HEF4094BT shift register Clock line	
o	4	GND P	Control & Oscillator Ground	
o	5	REC'	Record on/off control	(+5V=Pb; 0V=Rec)
o	6	CRO2'	CrO2 tape recording control	(+5V=Fe; 0V=Cr)

CONNECTOR 1705 DCC DECK CONNECTIONS ***[For versions with inputs for DCC Analog Playback]***

o	1	ACC L	DCC Deck analog playback left
o	2	GND A	AF Ground
o	3	ACC R	DCC Deck analog playback right

CONNECTOR 1706 CONTROL LINES FOR AF ELECTRON ***[For versions with Dolby only]***

o	1	STROBE	HEF4094BT shift register Strobe line	
o	2	DATA	HEF4094BT shift register Data line	
o	3	CLK	HEF4094BT shift register Clock line	
o	4	GND P	Control & Oscillator Ground	
o	5	REC '	Record on/off control	(+5V=Pb; 0V=Rec)
o	6	CRO2 '	CrO2 tape recording control	(+5V=Fe; 0V=Cr)
o	7	DOLBY '	Dolby NR on/off control (option)	(+5V=Off; 0V=On)

CONNECTOR 1711 BIAS CURRENT SENSO ***[For Testing purpose only]***

o	1	BIAS L +	Bias current test connector - left channel
o	2	BIAS L -	Bias current test connector - left channel
o	3	BIAS R +	Bias current test connector - right channel
o	4	BIAS R -	Bias current test connector - right channel

CONNECTOR 1720 DECK B HEADS CONNECTIOI ***(JQ top-type)***

o	1	B R/P HD L+	R / P Head left channel positive
o	2	B R/P HD L-	R / P Head left channel negative
o	3	B R/P HD R+	R / P Head right channel positive
o	4	B R/P HD R-	R / P Head right channel negative
o	5	ERASE HEAD	Erase Head
o	6	GND P	Erase Head ground

CONNECTOR 1730 DECK A HEAD CONNECTIONS ***[For Double Deck versions only]***

o	1	A PB HD R+	Pb Head right channel positive
o	2	GND A	Pb Head return ground shield
o	3	A PB HD L+	Pb Head left channel positive

5.2 TAPE DECK INTERFACES

CONNECTOR 1703 MOTOR SUPPLY LINES ***(PH side-type)***

o	1	+MOTOR	D.c. supply (+12V) for tape deck motor & solenoid
o	2	GND P	Motor Ground

CONNECTOR 1704 CONTROL LINES FOR TAPE DECK OPERAT ***(PH side-type)***

[For Single Deck versions only]

o	1	GND	Ground for deck sensing switches network (provision)
o	2	+5V	D.c. supply (+5V) for deck status ADC network (referenced to micro-proc st
o	3	AD1	Deck B sensing switches output voltage
o	4	EOT B	Deck B EOT/counter pulse
o	5	SOLB/MOTB *	Deck B motor/solenoid contrc (tri-state; see table below)
o	6	AD2	Deck A sensing switches output voltage

CONNECTOR 1707 CONTROL LINES FOR TAPE DECK OPERAT ***(PH side-type)***

[For Double Deck versions only]

o	1	GND	Ground for deck sensing switches network (provision)	
o	2	+5V	D.c. supply (+5V) for deck status ADC network (referenced to micro-proc st	
o	3	AD1	Deck B sensing switches output voltage	
o	4	EOT B	Deck B EOT/counter pulse	
o	5	SOLB/MOTB *	Deck B motor/solenoid contrc	(tri-state; see table)
o	6	AD2	Deck B sensing switches output voltage	
o	7	EOT A	Deck A EOT/counter pulse	
o	8	SOLA/MOTA *	Deck A motor/solenoid contrc	(tri-state; see table)
o	9	AD3	Deck A sensing switches output voltage	
o	#	NS/HS	Normal/high speed toggle	(+5V=HS; 0V=NS)

* motor/solenoid tri-state ctrl lines

	mot	sol
0V	on	on
Hi-Z	on	off
5V	off	off

CONNECTOR 1741 DECK B CONTROL INTERFACE

[For Single Deck versions only]

o	1	GND	Deck/Motor ground
o	2	MODE	Mode switch (head engagement)
o	3	Vcc	Deck/Motor supply
o	4	SOL B	Solenoid supply
o	5	PHOTO B	Photo sensor output (tape movement indication)
o	6	CrO2	Chrome tape detection switch
o	7	HALF	Half switch (cassette present detection, provision only)
o	8	REC FWD	Record tab protection status switch (forward)
o	9	REC RVS	Record tab protection status switch (reverse)

CONNECTOR 1742 DECK B CONTROL INTERFACE

[For Double Deck versions only]

o	1	H	H pin for motor
o	2	L	L pin for motor
o	3	GND	Deck/Motor ground
o	4	MODE	Mode switch (head engagement)
o	5	Vcc	Deck/Motor supply
o	6	SOL B	Solenoid supply
o	7	PHOTO B	Photo sensor output (tape movement indication)
o	8	CrO2	Chrome tape detection switch
o	9	HALF	Half switch (cassette present detection, provision only)
o	10	REC FWD	Record tab protection status switch (forward)
o	11	REC RVS	Record tab protection status switch (reverse)

CONNECTOR 1743 DECK A CONTROL INTERFAC ***(XH wire-type on dip-mate item 8)***

[For Double Deck/Single Motor versions only]

o	1	HALF	Half switch (cassette present detection, provision only)
o	2	CrO2	Chrome tape detection switch
o	3	PHOTO A	Photo sensor output (tape movement indication)
o	4	SOL A	Solenoid supply
o	5	Vcc	Deck/Motor supply
o	6	MODE	Mode switch (head engagement)
o	7	GND	Deck/Motor ground

CONNECTOR 1744 DECK A CONTROL INTERFAC ***(XH wire-type on dip-mate item 8 & 9)***

[For Double Deck/Double Motor versions only]

o	1	HALF	Half switch (cassette present detection, provision only)
o	2	CrO2	Chrome tape detection switch
o	3	PHOTO A	Photo sensor output (tape movement indication)
o	4	SOL A	Solenoid supply
o	5	Vcc	Deck/Motor supply
o	6	MODE	Mode switch (head engagement)
o	7	GND	Deck/Motor ground

o	1	L	L pin for motor
o	2	H	H pin for motor

SUPPLY	**DESCRIPTION**	**VOLTAGE**
+12V	d.c. supply for AF electronics	+12V
-CMOS	d.c. supply for CMOS Ics	-9V
+MOTOR	d.c. supply for tape deck motor and solenoid	+12V
+5V	d.c. supply for deck status ADC network	+5V

NOTES:

General

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST MOTOR SPEED						
HIGH SPEED	SBC420 (4822 397 30071)	DUBBING	10 or 11 LEFT RIGHT	frequency counter	3682	5670Hz ±0.5%
NORMAL SPEED	3150Hz	PLAY			3684	3150Hz ±0.5%
CHECK WOW & FLUTTER (DECK1 AND DECK2)						
WOW & FLUTTER	SBC420 (4822 397 30071) 3150Hz	PLAY	10 or 11 LEFT RIGHT	W&F-meter	check only	≤0.6 % unwtd.
ADJUST AZIMUTH (DECK1 AND DECK2)						
NORM. DIRECTION	SBC420 (4822 397 30071)	PLAY FWD	10 & 11 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
REV. DIRECTION	10kHz	PLAY REV			right hand screw	

Playback

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST PLAYBACK LEVEL						
DECK1	DOLBY REF. (4822 397 30071)	PLAY	10 & 11 LEFT RIGHT	mV-meter	3635(L), 3636(R)	535mV ±0.5dB
DECK2	200nWb/m				3641(L), 3642(R)	
CHECK PLAYBACK FREQUENCY RESPONSE (DECK1 AND DECK2)						
PB FREQU. RESP.	SBC420 (4822 397 30071)	PLAY	10 & 11 LEFT RIGHT	mV-meter	check only	limits see fig.1

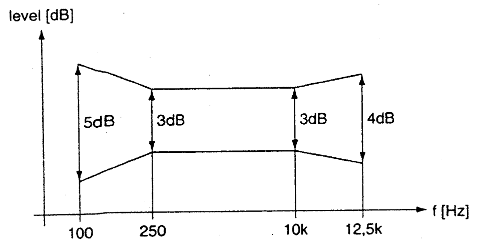


fig.1

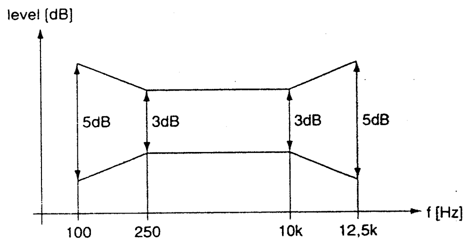


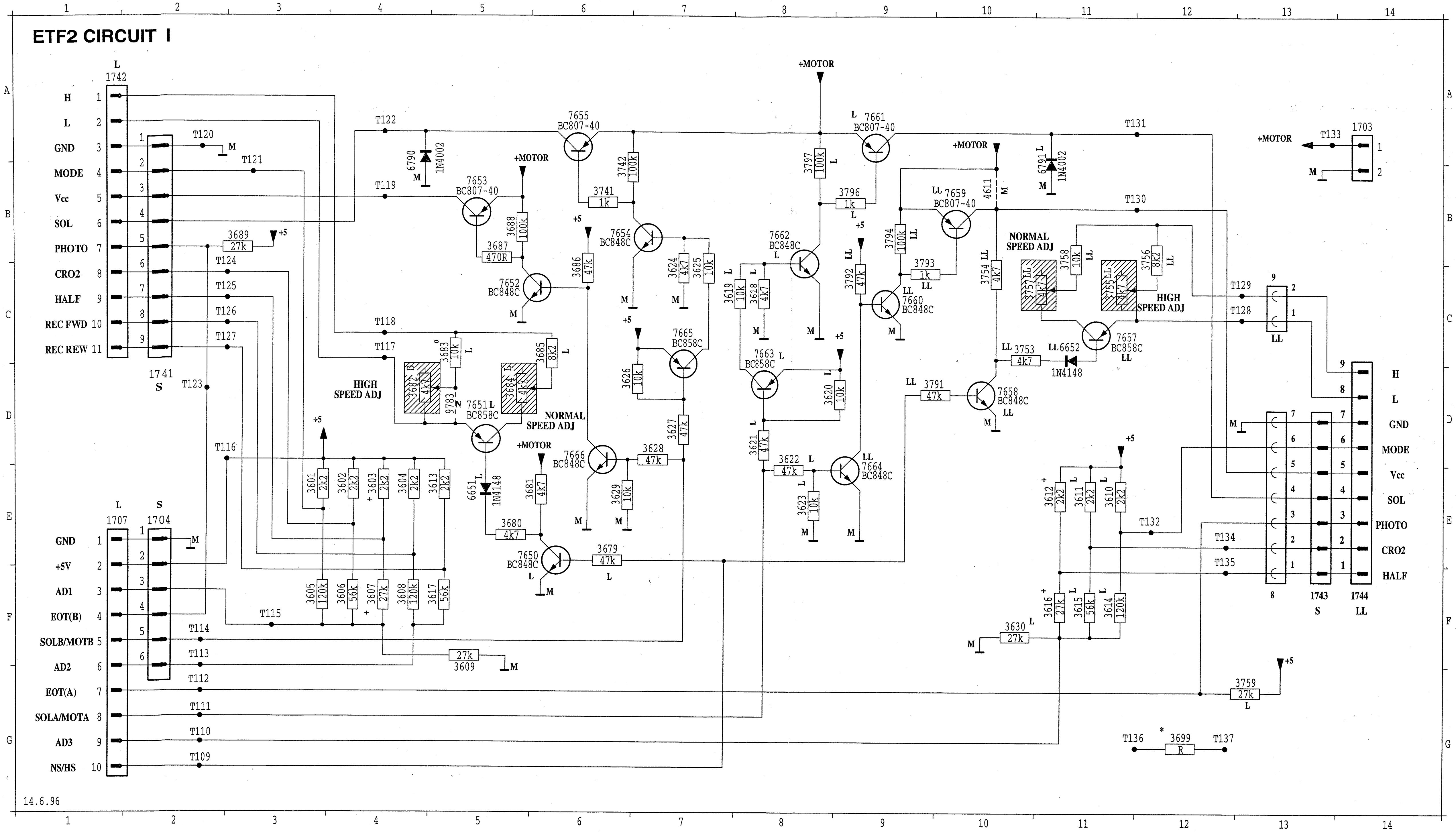
fig.2

Record

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
PRE-ADJUST BIAS AND BIAS-SYMMETRY						
CrO_2	CrO_2	RECORD	12 & 13 LEFT RIGHT	mV-meter	3773 & 3785	110mV & left=right
FERRO	FERRO	RECORD			check only	71mV ±0.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
37mV at AUX-IN, 100Hz,250Hz,1kHz, 10kHz,12.5kHz	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	10 & 11 LEFT RIGHT	mV-meter	check only	limits see fig.2
100mV at AUX-IN, 1kHz	CrO_2	RECORD				
	RECORDED CASSETTE	PLAY	10 & 11 LEFT RIGHT	THD-meter	check only	≤3%
Remark: If high frequencies are not within limits, decrease bias and remeasure. If distortion is too high increase bias and remeasure.						
ADJUST RECORD LEVEL						
AUX-IN	CrO_2	RECORD	10 & 11 LEFT RIGHT	mV-meter	LF-generator	330Hz 170mV
	CrO_2	RECORD	12 & 13 LEFT RIGHT	mV-meter	3655 & 3556	5mV [1]
[1] Remark: Use low pass filter to attenuate the bias component, or short-circuit base of 7783 to ground.						
RECORD LEVEL						
	RECORDED CASSETTE	PLAY	10 & 11 LEFT RIGHT	mV-meter	check only	330Hz 170mV ±0.5dB
Remark: If measured value is out of limit, re-adjust record level and remeasure.						

Note : The Adjustment and Check table are for all options/variants. For your exact application, please refer to the Options/Variants Table.

ETF2 CIRCUIT I


1742
1741
1707
1704
1703
1743
1744
H
L
GND
MODE
Vcc
SOL
PHOTO
CRO2
HALF
REC FWD
REC REW
+5V
AD1
EOT(B)
SOLB/MOTB
AD2
EOT(A)
SOLA/MOTA
AD3
NS/HS
+MOTOR
HIGH SPEED ADJ
NORMAL SPEED ADJ
BC807-40
BC848C
BC858C
1N4002
1N4148
14.6.96

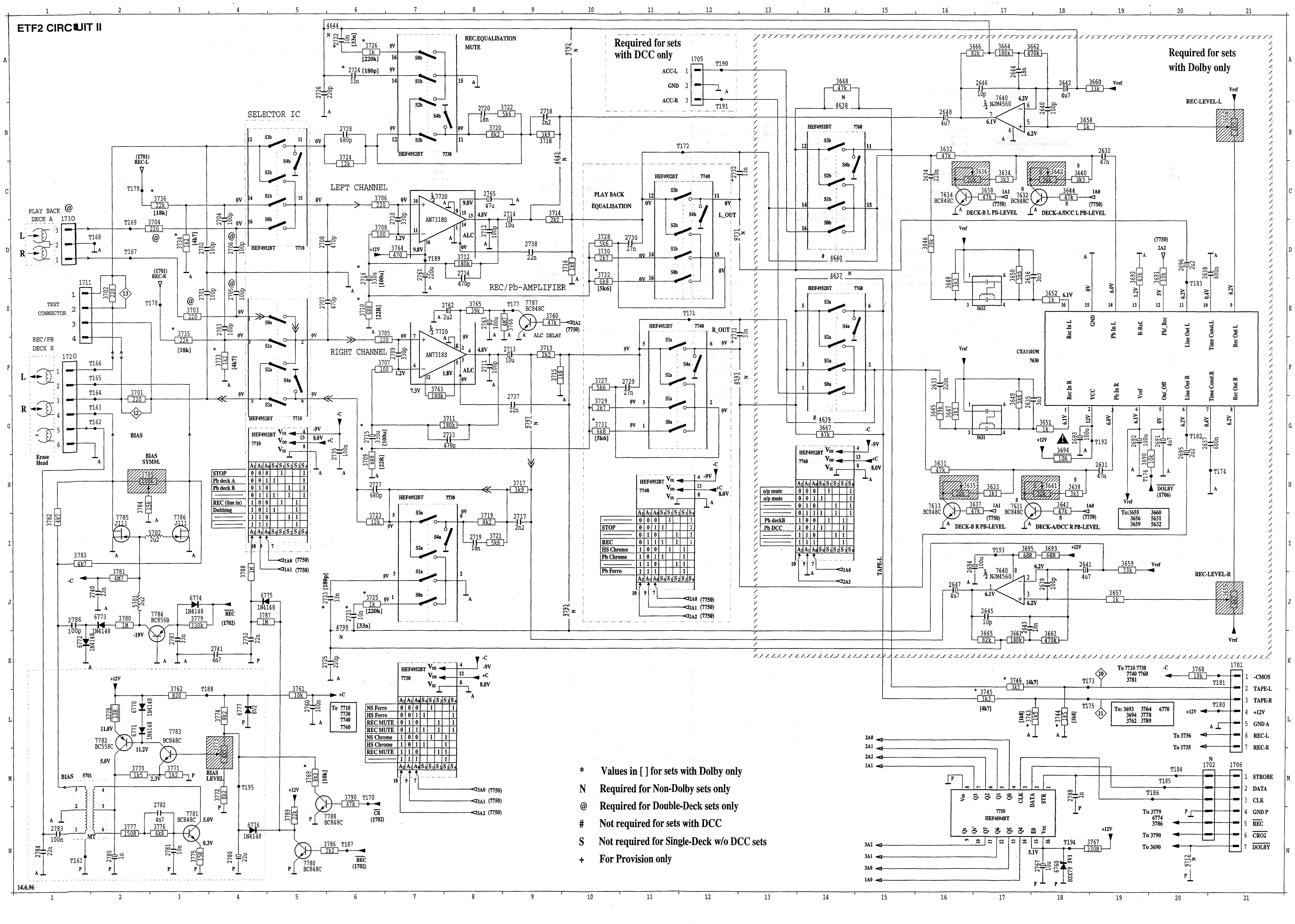
Item	Position
1703	A14
1704	E 2
1707	E 2
1741	D 2
1742	A 2
3601	E 3
3602	E 4
3603	E 4
3604	E 4
3605	F 3
3606	F 4
3607	F 4
3608	F 4
3610	E11
3611	E11
3612	E11
3613	E 5
3614	F11
3615	F11
3616	F11
3617	F 5
3618	C 8
3619	C 7
3620	D 8
3621	D 8
3622	D 8
3623	E 8
3624	C 7
3625	C 7
3626	D 6
3627	D 7
3628	D 7
3629	E 6
3679	E 6
3680	E 5
3681	E 6
3682	D 4
3683	C 5
3684	D 5
3685	C 6
3686	C 6
3687	B 5
3688	B 5
3689	B 3
3699	G12
3741	B 6
3742	B 6
3753	C10
3754	C10
3755	C11
3756	B12
3757	C10
3758	B11
3759	G13
3791	D 9
3792	C 9
3793	C 9
3794	B 9
3796	B 9
3797	A 8
4611	B10
6651	E 5
6652	C11
6790	A 4
6791	A11
7650	E 6
7651	D 5
7652	C 5
7653	B 5
7654	B 6
7655	A 6
7657	C11
7658	D10
7659	B10
7660	C 9
7661	A 9
7662	B 8
7663	C 8
7664	E 9
7665	C 7
7666	D 6
8	F13
9	C13
9783	D 5
T109	G 2
T110	G 2
T111	G 2
T112	G 2
T113	F 2
T114	F 2
T115	F 3
T116	D 2
T117	C 4
T118	C 4
T119	B 4
T120	A 2
T121	A 3
T122	A 4
T123	D 2
T124	B 2
T125	C 2
T126	C 2
T127	C 2
T128	C13
T129	C13
T130	B11
T131	A11
T132	E12
T133	A13
T134	E12
T135	E12
T136	G11
T137	G12

S Required for sets with Single-Deck only
N Required for sets with Non-Dolby/Double-Deck only
D Required for sets with Dolby/Double-Deck only
L Required for sets with Double-Deck only
M Required for sets with Double-Deck/Single-Motor only
LL Required for sets with Double-Deck/Double-Motor only
+ For provision only

* For Variants detection during PCB testing :
Values for Resistor 3699

1	ND/SD	1k
2	DB/SD	2k2
3	ND/DD/FR	3k3
4	DB/DD/FR	5k6
5	DB/DD/RR	5k6
6	DB/DD/DM	6k8

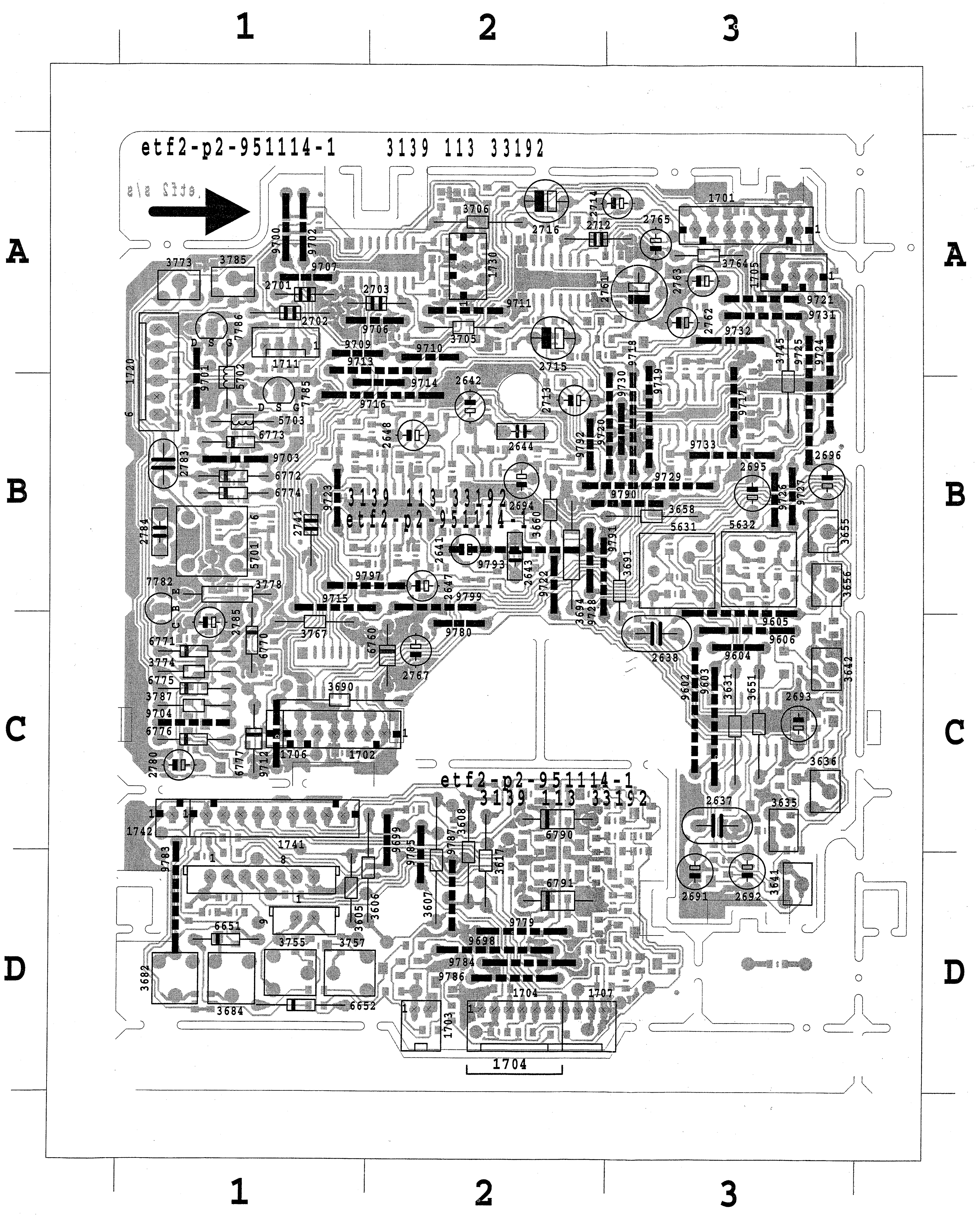
o For Dolby variant,
item 3683 - 8k2
item 3685 - 10k


ETF2 CIRCUIT II
SELECTOR IC
LEFT CHANNEL
RIGHT CHANNEL
REC/Pb-AMPLIFIER
REC.EQUALISATION MUTE
PLAY BACK EQUALISATION
Required for sets with DCC only
Required for sets with Dolby only
PLAY BACK DECK A
REC/PB DECK B
TEST CONNECTOR
Erase Head
BIAS
BIAS SYMM.
BIAS LEVEL
ALC DELAY
REC-LEVEL-L
REC-LEVEL-R
DECK-B L PB-LEVEL
DECK-A/DCC L PB-LEVEL
DECK-B R PB-LEVEL
DECK-A/DCC R PB-LEVEL
AN7318S
HEF4952BT
HEF4094BT
CXA1101M
NJM4560
-CMOS
TAPE-L
TAPE-R
+12V
GND A
REC-L
REC-R
STROBE
DATA
CLK
GND P
REC
CRO2
DOLBY
14.6.96

- * Values in [ ] for sets with Dolby only
- N Required for Non-Dolby sets only
- @ Required for Double-Deck sets only
- # Not required for sets with DCC
- S Not required for Single-Deck w/o DCC sets
- + For Provision only

1701	K21
1702	M20
1705	A12
1706	M21
1711	E 1
1720	F 1
1730	D 1
2631	H19
2632	B19
2633	F16
2634	C16
2635	G17
2636	D17
2637	G20
2638	D20
2639	J18
2640	B18
2641	I18
2642	A18
2643	J17
2644	A17
2645	J17
2646	A17
2647	J16
2648	B16
2691	G20
2692	G19
2693	G18
2694	I16
2695	G20
2696	D20
2701	E 3
2702	D 3
2703	E 4
2704	D 4
2705	E 4
2706	D 4
2707	E 5
2708	D 5
2709	F 7
2710	D 7
2711	F 8
2712	D 8
2713	F 9
2714	C 9
2715	G 6
2716	E 6
2717	I 9
2718	B 9
2719	I 8
2720	B 8
2721	J 6
2722	A 6
2723	J 5
2724	A 6
2725	K 5
2726	A 5
2727	H 6
2728	B 6
2729	F11
2730	D11
2731	E12
2732	C12
2733	G 8
2734	D 8
2735	H 6
2737	G 9
2738	D 9
2740	J 2
2741	K 4
2752	K 4
2760	L 5
2761	D 7
2762	E 8
2763	E 8
2765	C 8
2767	N18
2780	N 4
2781	N 3
2782	N 3
2783	N 1
2784	N 1
2785	N 2
2786	J 1
2787	K 3
2788	M18
3631	H16
3632	B16
3633	H17
3634	C17
3635	H16
3636	C17
3637	H17
3638	C17
3639	H18
3640	C18
3641	H18
3642	C18
3643	H18
3644	C18
3645	G16
3646	D16
3647	G16
3648	E16
3649	G17
3650	D17
3651	G18
3652	E18
3655	J21
3656	B21
3657	J19
3658	B18
3659	I19
3660	A19
3661	K18
3662	A18
3663	K17
3664	A17
3665	K17
3666	A17
3667	G14
3668	A14
3690	H19
3691	D20
3692	D19
3693	I18
3694	G18
3695	I17
3701	F 2
3702	E 2
3703	E 3
3704	D 3
3705	E 6
3706	C 6
3707	F 6
3708	D 6
3709	H 6
3710	E 6
3711	G 8
3712	D 8
3713	F 9
3714	C 9
3715	F 9
3716	D10
3717	H 9
3718	B 9
3719	I 8
3720	B 8
3721	I 8
3722	B 9
3723	I 6
3724	B 6
3725	J 6
3726	A 6
3727	F10
3728	D10
3729	G10
3730	D10
3731	G10
3732	D10
3733	F 4
3734	D 3
3735	E 3
3736	C 3
3743	L17
3744	L18
3745	L17
3746	K17
3760	E 9
3761	L 5
3762	L 3
3763	F 7
3764	D 7
3765	E 8
3766	E 9
3767	N19
3768	K20
3769	M 5
3770	M 2
3771	M 3
3772	M 4
3773	L 4
3774	L 4
3775	N 3
3776	N 3
3777	N 2
3778	L 2
3779	J 3
3780	J 2
3781	J 2
3782	I 1
3783	I 1
3784	H 2
3785	H 2
3786	N 6
3787	J 4
3788	J 4
3789	N 5
3790	M 6
4593	F12
4637	E14
4638	B14
4639	G14
4640	D14
4643	B 9
4644	A 6
4799	K 6
5631	G17
5632	E17
5701	M 1
5702	I 3
5703	J 2
6760	N18
6770	L 2
6771	L 2
6772	K 1
6773	J 2
6774	J 3
6775	J 4
6776	N 4
6777	L 4
7630	F18
7631	H17
7632	C17
7633	H16
7634	C16
7640	J17
7640	A17
7710	G 5
7710	D 5
7710	G 4
7720	E 7
7720	C 7
7730	H 7
7730	B 7
7730	K 7
7740	C12
7740	H11
7740	E12
7750	N17
7760	E14
7760	H13
7760	B14
7780	N 5
7781	N 3
7782	L 2
7783	L 3
7784	J 2
7785	I 2
7786	I 3
7787	E 9
7788	N 6
9712	N20
9731	D12
9792	A10
9793	J10
9797	G 9
T161	N 1
T162	G 2
T163	G 2
T164	F 2
T165	F 2
T166	F 2
T167	D 2
T168	D 2
T169	D 2
T170	M 6
T171	E12
T172	B12
T173	K18
T174	H21
T175	L18
T176	H19
T177	E 9
T178	E 3
T179	C 2
T180	L21
T181	K21
T182	G20
T183	E20
T184	M20
T185	M20
T186	M20
T187	N 6
T188	L 3
T189	D 7
T190	A12
T191	B12
T192	G19
T193	I17
T194	N18
T195	M 4

COMPONENT LAYOUT


1
2
3
A
B
C
D
etf2-p2-951114-1 3139 113 33192
etf2 s/s
3139 113 33192
etf2-p2-951114-1
etf2-p2-951114-1
3139 113 33192
3773
3785
3706
2716
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2712
2765
1701
1730
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2763
1705
3764
9721
9731
9700
9702
9707
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2702
2703
9706
9711
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1711
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9710
9713
9714
9716
2642
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9730
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9719
9717
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9724
1720
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5702
5703
7786
7785
6773
2783
9703
6772
6774
2648
2644
9792
9720
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9727
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2741
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9729
9790
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5631
5632
3655
2784
5701
2641
9793
2643
9722
9791
3691
3656
7782
3778
9797
2647
9799
9715
3767
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3694
9728
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9605
9606
9604
6771
6770
6760
2767
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3690
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9603
3631
3651
2693
3787
9704
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2780
6777
9712
1706
1702
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2637
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9783
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9785
9787
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3617
6790
3606
3605
3607
6791
2691
2692
3641
6651
9779
9698
3755
3757
9784
9786
3682
3684
6652
1704
1707
1703
1704

8	D	1
9	D	1
1701	A	3
1702	C	1
1703	D	2
1704	D	2
1705	A	3
1706	C	1
1707	D	2
1711	A	1
1720	A	1
1730	A	2
1741	C	1
1742	C	1
2637	C	3
2638	C	3
2641	B	2
2642	B	2
2643	B	2
2644	B	2
2647	B	2
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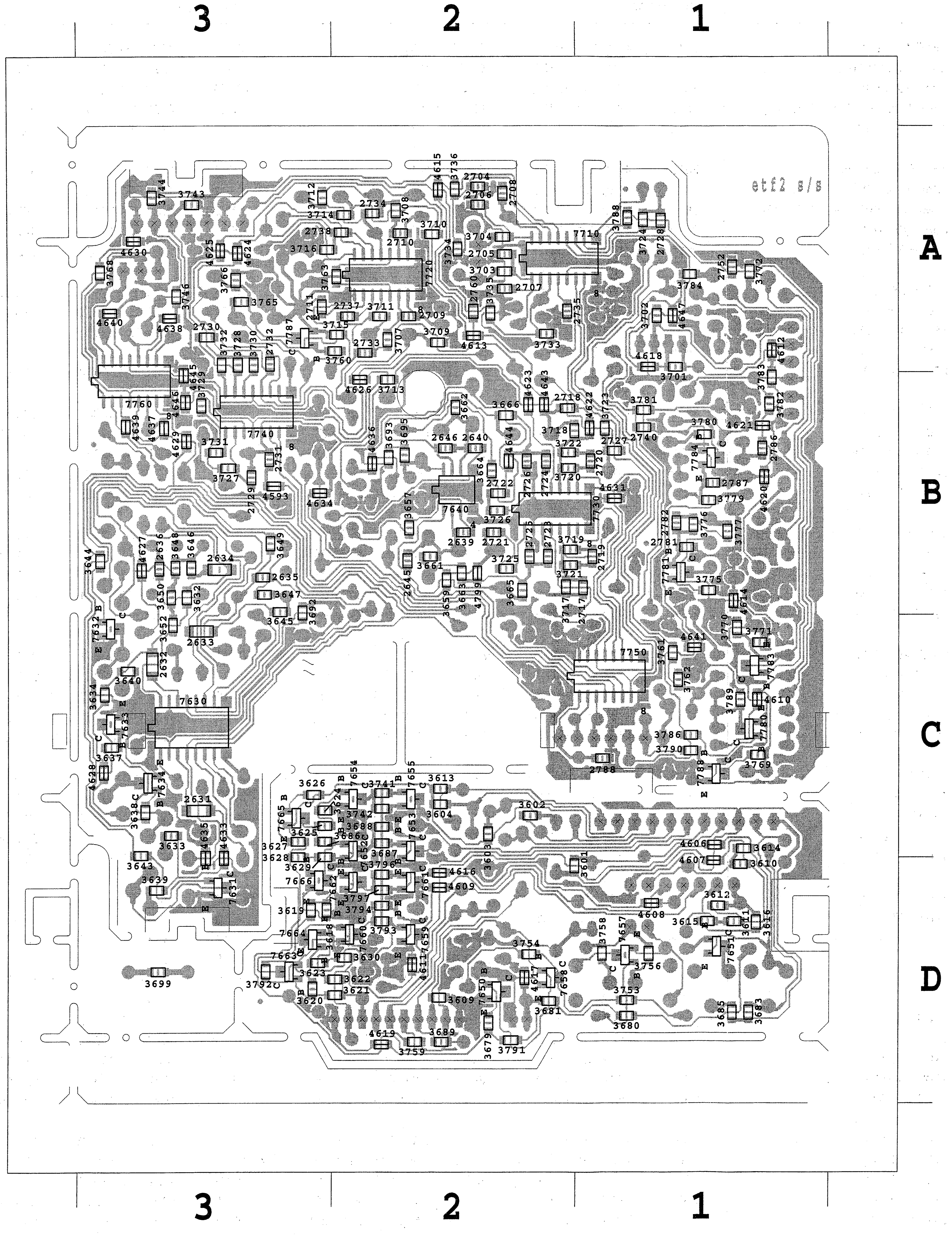
2691	D	3
2692	D	3
2693	C	3
2694	B	2
2695	B	3
2696	B	3
2701	A	1
2702	A	1
2703	A	2
2712	A	2
2713	B	2
2714	A	3
2715	A	2
2716	A	2
2741	B	1
2761	A	3
2762	A	3
2763	A	3
2765	A	3
2767	C	2
2780	C	1
2783	B	1
2784	B	1
2785	C	1
3605	D	1
3606	D	2
3607	D	2
3608	D	2
3617	D	2
3631	C	3
3635	C	3
3636	C	3
3641	D	3
3642	C	3
3651	C	3
3655	B	3
3656	B	3
3658	B	3
3660	B	2
3682	D	1
3684	D	1
3690	C	1
3691	B	3
3694	B	2
3705	A	2
3706	A	2
3745	B	3
3755	D	1
3757	D	1
3764	A	3
3767	C	1
3773	A	1
3774	C	1
3778	B	1
3785	A	1
3787	C	1
5631	B	3
5632	B	3
5701	B	1
5702	B	1
5703	B	1
6651	D	1
6652	D	1
6760	C	2
6770	C	1
6771	C	1
6772	B	1
6773	B	1
6774	B	1
6775	C	1
6776	C	1
6777	C	1
6790	C	2
6791	D	2
7782	B	1
7785	B	1
7786	A	1
9602	C	3
9603	C	3
9604	C	3
9605	C	3
9606	C	3
9698	D	2
9699	C	2
9700	A	1
9701	B	1
9702	A	1
9703	B	1
9704	C	1
9706	A	2
9707	A	1
9709	A	1
9710	A	2
9711	A	2
9712	C	1
9713	A	2
9714	B	2
9715	B	1
9716	B	2
9717	B	3
9718	B	3
9719	B	3
9720	B	3
9721	A	3
9722	B	2
9723	B	1
9724	B	3
9725	B	3
9726	B	3
9727	B	3
9728	B	2
9729	B	3
9730	B	3
9731	A	3
9732	A	3
9733	B	3
9779	D	2
9780	C	2
9783	D	1
9784	D	2
9785	D	2
9786	D	2
9787	D	2
9790	B	3
9791	B	2
9792	B	2
9793	B	2
9797	B	1
9799	B	2

CHIP LAYOUT



2631	C	3
2632	C	3
2633	C	3
2634	B	3
2635	B	3
2636	B	3
2639	B	2
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2645	B	2
2646	B	2
2704	A	2
2705	A	2
2706	A	2
2707	A	2
2708	A	2
2709	A	2
2710	A	2
2711	A	3
2717	B	1
2718	B	2
2719	B	1
2720	B	1
2721	B	2
2722	B	2
2723	B	2
2724	B	2
2725	B	2
2726	B	2
2727	B	1
2728	A	1
2729	B	3
2730	A	3
2731	B	3
2732	A	3
2733	A	2
2734	A	2
2735	A	2
2737	A	2
2738	A	2
2740	B	1
2752	A	1
2760	A	2
2781	B	1
2782	B	1
2786	B	1
2787	B	1
2788	C	1
3601	D	2
3602	C	2
3603	C	2
3604	C	2
3609	D	2
3610	D	1
3611	D	1
3612	D	1
3613	C	2
3614	C	1
3615	D	1
3616	D	1
3618	D	3
3619	D	3
3620	D	3
3621	D	2
3622	D	2
3623	D	3
3624	C	3
3625	C	3
3626	C	3
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3630	D	2
3632	B	3
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3638	C	3
3639	D	3
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3649	B	3
3650	B	3
3652	C	3
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3659	B	2
3661	B	2
3662	B	2
3663	B	2
3664	B	2
3665	B	2
3666	B	2
3679	D	2
3680	D	1
3681	D	2
3683	D	1
3685	D	1
3686	C	3
3687	C	2
3688	C	2
3689	D	2
3692	B	3
3693	B	2
3695	B	2
3699	D	3
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3703	A	2
3704	A	2
3707	A	2
3708	A	2
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3712	A	3
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3714	A	2
3715	A	2
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3721	B	2
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3724	A	1
3725	B	2
3726	B	2
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3770	C	1
3771	C	1
3772	A	1
3775	B	1
3776	B	1
3777	B	1
3779	B	1
3780	B	1
3781	B	1
3782	B	1
3783	B	1
3784	A	1
3786	C	1
3788	A	1
3789	C	1
3790	C	1
3791	D	2
3792	D	3
3793	D	2
3794	D	2
3796	D	2
3797	D	2
4593	B	3
4606	C	1
4607	D	1
4608	D	1
4609	D	2
4610	C	1
4611	D	2
4612	A	1
4613	A	2
4614	B	1
4615	A	2
4616	D	2
4617	D	2
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4620	B	1
4621	B	1
4622	B	1
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4627	B	3
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4634	B	3
4635	D	3
4636	B	2
4637	B	3
4638	A	3
4639	B	3
4640	A	3
4641	C	1
4643	B	2
4644	B	2
4645	B	3
4646	B	3
4647	A	1
4799	B	2
7630	C	3
7631	D	3
7632	C	3
7633	C	3
7634	C	3
7640	B	2
7650	D	2
7651	D	1
7652	C	2
7653	C	2
7654	C	2
7655	C	2
7657	D	1
7658	D	2
7659	D	2
7660	D	2
7661	D	2
7662	D	2
7663	D	3
7664	D	3
7665	C	3
7666	D	3
7710	A	2
7720	A	2
7730	B	2
7740	B	3
7750	C	1
7760	B	3
7780	C	1
7781	B	1
7783	C	1
7784	B	1
7787	A	3
7788	C	1

CAPACITORS

2631	4822 122 32542	47nF 10% 63V (For -/22 & -/25)
2632	4822 122 32542	47nF 10% 63V (For -/22 & -/25)
2633	4822 122 32927	220nF +80-20% 50V (For -/22 & -/25)
2634	4822 122 32927	220nF +80-20% 50V (For -/22 & -/25)
2635	4822 122 33891	3.3nF 10% 63V (For -/22 & -/25)
2636	4822 122 33891	3.3nF 10% 63V (For -/22 & -/25)
2637	5322 121 42498	680nF 5% 63V (For -/22 & -/25)
2638	5322 121 42498	680nF 5% 63V (For -/22 & -/25)
2639	5322 122 32531	100pF 5% 50V (For -/22 & -/25)
2640	5322 122 32531	100pF 5% 50V (For -/22 & -/25)
2641	4822 124 40246	4.7µF 20% 63V (For -/22 & -/25)
2642	4822 124 40246	4.7µF 20% 63V (For -/22 & -/25)
2643	4822 121 43179	18nF 5% 250V (For -/22 & -/25)
2644	4822 121 43179	18nF 5% 250V (For -/22 & -/25)
2645	5322 122 32448	10pF 5% 50V (For -/22 & -/25)
2646	5322 122 32448	10pF 5% 50V (For -/22 & -/25)
2647	4822 124 40246	4.7µF 20% 63V (For -/22 & -/25)
2648	4822 124 40246	4.7µF 20% 63V (For -/22 & -/25)
2691	4822 124 40246	4.7µF 20% 63V (For -/22 & -/25)
2692	4822 124 41584	100µF 20% 10V (For -/22 & -/25)
2693	4822 124 81029	100µF20% 25V (For -/22 & -/25)
2694	4822 124 81029	100µF20% 25V (For -/22 & -/25)
2695	4822 124 41576	2.2µF 20% 50V (For -/22 & -/25)
2696	4822 124 41576	2.2µF 20% 50V (For -/22 & -/25)
2701	4822 122 33195	100pF 10% 50V
2702	4822 122 33195	100pF 10% 50V
2703	4822 122 33195	100pF 10% 50V
2704	5322 122 32531	100pF 5% 50V
2705	5322 122 32531	100pF 5% 50V
2706	5322 122 32531	100pF 5% 50V
2707	5322 122 34099	470pF 10% 63V
2708	5322 122 34099	470pF 10% 63V
2709	5322 122 31863	330pF 5% 50V
2710	5322 122 31863	330pF 5% 50V
2711	5322 122 32531	100pF 5% 50V
2712	4822 122 33195	100pF 10% 50V
2713	4822 124 41579	10µF 20% 50V
2714	4822 124 41579	10µF 20% 50V
2715	4822 124 41584	100µF 20% 10V (For -/22 & -/25)
2715	4822 124 40849	330µF 20% 16V
2716	4822 124 41584	100µF 20% 10V (For -/22 & -/25)
2716	4822 124 40849	330µF 20% 16V
2717	4822 122 33175	2.2nF 20% 50V
2718	4822 122 33175	2.2nF 20% 50V
2719	4822 122 33893	18nF 10% 63V

CAPACITORS

2720	4822 122 33893	18nF 10% 63V
2721	4822 122 33342	33nF 10% 63V (For -/22 & -/25)
2721	4822 122 33177	10nF 20% 50V
2722	4822 122 33342	33nF 10% 63V (For -/22 & -/25)
2722	4822 122 33177	10nF 20% 50V
2723	4822 126 10326	180pF 5% 63V (For -/22 & -/25)
2723	4822 122 33342	33nF 10% 63V
2724	4822 126 10326	180pF 5% 63V (For -/22 & -/25)
2724	4822 122 33342	33nF 10% 63V
2725	5322 126 10794	220pF 5% 63V
2726	5322 126 10794	220pF 5%63V
2727	4822 122 32535	680pF 10% 63V
2728	4822 122 32535	680pF 10% 63V
2729	4822 122 32541	27nF 10% 63V
2730	4822 122 32541	27nF 10% 63V
2733	5322 122 34099	470pF 5% 50V
2734	5322 122 31863	330pF 5% 50V
2735	4822 126 10002	100nF 20% 25V
2737	5322 122 32654	22nF 10% 63V
2738	5322 122 32654	22nF 10% 63V
2740	5322 122 32654	22nF 10% 63V
2741	4822 126 11714	4.7nF 20%
2752	5322 122 32654	22nF 10% 63V
2760	4822 126 10002	100nF 20% 25V
2761	4822 124 22263	220µF 20% 25V
2762	4822 124 41576	2.2µF 20% 50V
2763	4822 124 41584	100µF 20% 10V
2765	4822 124 40433	47µF 20% 25V
2767	4822 124 41579	10µF 20% 50V
2780	4822 124 41596	22µF 20% 50V
2781	4822 122 33177	10nF 20% 50V
2782	5322 126 10223	4.7nF 10% 63V
2783	5322 121 42386	100nF 5% 63V
2784	4822 121 41856	22nF 5% 250V
2785	4822 124 40242	1µF 20% 63V
2786	5322 122 32531	100pF 5% 50V
2787	4822 122 33342	33nF 10% 63V
2788	5322 122 34123	1nF 10% 50V

RESISTORS

3601	4822 117 11449	2k2 1% 0.1W
3602	4822 117 11449	2k2 1% 0.1W
3604	4822 117 11449	2k2 1% 0.1W
3605	4822 116 52239	120k 5% 0.5W
3606	4822 116 52291	56k 5% 0.5W
3608	4822 116 52239	120k 5% 0.5W
3609	4822 051 20273	27k 5% 0.1W
3610	4822 117 11449	2k2 1% 0.1W
3611	4822 117 11449	2k2 1% 0.1W
3613	4822 117 11449	2k2 1% 0.1W

RESISTORS

3614	4822 051 20124	120k 5% 0.1W
3615	4822 051 20563	56k 5% 0.1W
3617	4822 116 52291	56k 5% 0.5W
3618	4822 051 20472	4k7 5% 0.1W
3619	4822 051 20103	10k 5% 0.1W
3620	4822 051 20103	10k 5% 0.1W
3621	4822 051 20473	47k 5% 0.1W
3622	4822 051 20473	47k 5% 0.1W
3623	4822 051 20103	10k 5% 0.1W
3624	4822 051 20472	4k7 5% 0.1W
3625	4822 051 20103	10k 5% 0.1W
3626	4822 051 20103	10k 5% 0.1W
3627	4822 051 20473	47k 5% 0.1W
3628	4822 051 20473	47k 5% 0.1W
3629	4822 051 20103	10k 5% 0.1W
3630	4822 051 20273	27k 5% 0.1W
3631	4822 116 52284	47k 5% 0.5W (For -/22 & -/25)
3632	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3633	4822 051 20332	3k3 5% 0.1W (For -/22 & -/25)
3634	4822 051 20332	3k3 5% 0.1W (For -/22 & -/25)
3635	4822 100 11771	20k 30%lin 0.1W (For -/22 & -/25)
3636	4822 100 11771	20k 30%lin 0.1W (For -/22 & -/25)
3637	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3638	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3639	4822 051 20332	3k3 5% 0.1W (For -/22 & -/25)
3640	4822 051 20332	3k3 5% 0.1W (For -/22 & -/25)
3641	4822 100 11771	20k 30%lin 0.1W (For -/22 & -/25)
3642	4822 100 11771	20k 30%lin 0.1W (For -/22 & -/25)
3643	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3644	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3645	4822 051 20393	39k 5% 0.1W (For -/22 & -/25)
3646	4822 051 20393	39k 5% 0.1W (For -/22 & -/25)
3647	4822 051 20332	3k3 5% 0.1W (For -/22 & -/25)
3648	4822 051 20332	3k3 5% 0.1W (For -/22 & -/25)
3649	4822 051 20562	5k6 5% 0.1W (For -/22 & -/25)
3650	4822 051 20562	5k6 5% 0.1W (For -/22 & -/25)
3651	4822 050 11002	1k 1% 0.4W (For -/22 & -/25)
3652	4822 051 10102	1k 2% 0.25W (For -/22 & -/25)
3655	5322 100 11542	4k7 30%lin 0.1W (For -/22 & -/25)
3656	5322 100 11542	4k7 30%lin 0.1W (For -/22 & -/25)
3657	4822 051 10102	1k 2% 0.25W (For -/22 & -/25)
3658	4822 050 11002	1k 1% 0.4W (For -/22 & -/25)
3659	4822 051 20333	33k 5% 0.1W (For -/22 & -/25)
3660	4822 116 52271	33k 5% 0.5W (For -/22 & -/25)
3661	4822 051 20474	470k 5% 0.1W (For -/22 & -/25)
3662	4822 051 20474	470k 5% 0.1W (For -/22 & -/25)
3663	4822 051 20184	180k 5% 0.1W (For -/22 & -/25)
3664	4822 051 20184	180k 5% 0.1W (For -/22 & -/25)
3665	4822 117 11149	82k 1% 0.1W (For -/22 & -/25)
3666	4822 117 11149	82k 1% 0.1W (For -/22 & -/25)

RESISTORS

3667	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3668	4822 051 20473	47k 5% 0.1W (For -/22 & -/25)
3679	4822 051 20473	47k 5% 0.1W
3680	4822 051 20472	4k7 5% 0.1W
3681	4822 051 20472	4k7 5% 0.1W
3682	4822 100 11319	4k7 30%lin 0.1W (For -/22 & -/25)
3683	4822 051 20822	8k2 5% 0.1W (For -/22 & -/25)
3683	4822 051 20103	10k 5% 0.1W
3684	4822 100 11319	4k7 30%lin 0.1W
3685	4822 051 20822	8k2 5% 0.1W
3686	4822 051 20473	47k 5% 0.1W
3687	4822 051 20471	470Ω 2% 0.25W
3688	4822 051 20104	100k 5% 0.1W
3689	4822 051 20273	27k 5% 0.1W
3690	4822 116 83864	10k 5% 0.5W (For -/22 & -/25)
3691	4822 116 83864	10k 5% 0.5W (For -/22 & -/25)
3692	4822 051 20433	43k 5% 0.1W (For -/22 & -/25)
3693	4822 051 20689	68Ω 5% 0.1W (For -/22 & -/25)
3694	4822 052 10109	10Ω 5% 0.33W (For -/22 & -/25)
3695	4822 051 20689	68Ω 5% 0.1W (For -/22 & -/25)
3699	4822 051 20562	5k6 5% 0.1W (For -/22 & -/25)
3699	4822 051 20332	3k3 5% 0.1W
3701	4822 051 20221	220Ω 5% 0.1W
3702	4822 051 20221	220Ω 5% 0.1W
3703	4822 051 20221	220Ω 5% 0.1W
3704	4822 051 20221	220Ω 5% 0.1W
3705	4822 116 83872	220Ω 5% 0.5W
3706	4822 116 83872	220Ω 5% 0.5W
3707	4822 051 20101	100Ω 5% 0.1W
3708	4822 051 20101	100Ω 5% 0.1W
3709	4822 051 20229	22Ω 5% 0.1W (For -/22 & -/25)
3709	4822 051 20688	6Ω8 5% 0.1W
3710	4822 051 20229	22Ω 5% 0.1W (For -/22 & -/25)
3710	4822 051 20688	6Ω8 5% 0.1W
3711	4822 051 20184	180k 5% 0.1W
3712	4822 051 20184	180k 5% 0.1W
3713	4822 117 11449	2k2 1% 0.1W
3714	4822 117 11449	2k2 1% 0.1W
3715	4822 051 20182	1k8 5% 0.1W
3716	4822 051 20182	1k8 5% 0.1W
3717	4822 051 20392	3k9 5% 0.1W
3718	4822 051 20392	3k9 5% 0.1W
3719	4822 051 20822	8k2 5% 0.1W
3720	4822 051 20822	8k2 5% 0.1W
3721	4822 051 20562	5k6 5% 0.1W
3722	4822 051 20562	5k6 5% 0.1W
3723	4822 117 11383	12k 1% 0.1W
3724	4822 117 11383	12k 1% 0.1W
3725	4822 051 20224	220k 5% 0.1W (For -/22 & -/25)
3725	4822 051 10102	1k 2% 0.25W

CASSETTE BOARD PARTLIST

RESISTORS

3726	4822 051 20224	220k 5% 0.1W (For -/22 & -/25)
3726	4822 051 10102	1k 2% 0.25W
3727	4822 051 20562	5k6 5% 0.1W
3728	4822 051 20562	5k6 5% 0.1W
3729	4822 051 20272	2k7 5% 0.1W
3730	4822 051 20272	2k7 5% 0.1W
3731	4822 051 20562	5k6 5% 0.1W (For -/22 & -/25)
3731	4822 051 20682	6k8 5% 0.1W
3732	4822 051 20562	5k6 5%
3765	4822 051 20393	39k 5% 0.1W
3766	4822 051 20475	4M7 5% 0.1W
3767	4822 116 52219	330Ω 5% 0.5W
3768	4822 051 20103	10k 5% 0.1W
3769	4822 051 20103	10k 5% 0.1W (For -/22 & -/25)
3769	4822 051 20822	8k2 5% 0.1W
3770	4822 117 11139	1k5 1% 0.1W
3771	4822 051 20122	1k2 5% 0.1W
3772	4822 051 20822	8k2 5% 0.1W
3773	5322 100 11542	4k7 30%lin 0.1W
3774	4822 116 52303	8k2 5% 0.5W
3775	4822 051 20159	15Ω 5% 0.1W
3776	4822 051 20682	6k8 5% 0.1W
3777	4822 117 10353	150Ω 1% 0.1W
3778	4822 052 10109	10Ω 5% 0.33W
3779	4822 051 20334	330k 5% 0.1W
3780	4822 051 20105	1M 5% 0.1W
3781	4822 051 20475	4M7 5% 0.1W
3782	4822 051 20472	4k7 5% 0.1W
3783	4822 051 20472	4k7 5% 0.1W
3784	4822 051 20153	15k 5% 0.1W
3785	5322 100 11539	100k 30%lin 0.1W
3786	4822 117 11449	2k2 1% 0.1W
3787	4822 116 52235	1M 5% 0.5W
3788	4822 051 20105	1M 5% 0.1W
3789	4822 051 20223	22k 5% 0.1W
3790	4822 051 20473	47k 5% 0.1W
3796	4822 051 10102	1k 2% 0.25W
3797	4822 051 20104	100k 5% 0.1W

JUMPER

4593	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4606	4822 051 20008	0Ω Jumper
4607	4822 051 20008	0Ω Jumper
4608	4822 051 20008	0Ω Jumper
4609	4822 051 20008	0Ω Jumper
4610	4822 051 20008	0Ω Jumper
4611	4822 051 20008	0Ω Jumper
4612	4822 051 20008	0Ω Jumper
4613	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4614	4822 051 20008	0Ω Jumper

JUMPER

4615	4822 051 20008	0Ω Jumper
4616	4822 051 20008	0Ω Jumper
4617	4822 051 20008	0Ω Jumper
4618	4822 051 20008	0Ω Jumper
4619	4822 051 20008	0Ω Jumper
4620	4822 051 20008	0Ω Jumper
4621	4822 051 20008	0Ω Jumper
4622	4822 051 20008	0Ω Jumper
4623	4822 051 20008	0Ω Jumper
4624	4822 051 20008	0Ω Jumper
4625	4822 051 20008	0Ω Jumper
4626	4822 051 20008	0Ω Jumper
4627	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4628	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4629	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4630	4822 051 20008	0Ω Jumper
4631	4822 051 20008	0Ω Jumper
4633	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4634	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4635	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4636	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4637	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4638	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4639	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4640	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4641	4822 051 20008	0Ω Jumper
4643	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4644	4822 051 20008	0Ω Jumper (For -/21 & -/37)
4645	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4646	4822 051 20008	0Ω Jumper (For -/22 & -/25)
4647	4822 051 20008	0Ω Jumper
4799	4822 051 20008	0Ω Jumper (For -/21 & -/37)

COIL

5631	4822 156 21725	Coil Filter (For -/22 & -/25)
5632	4822 156 21725	Coil Filter (For -/22 & -/25)
5701	4822 156 20946	Coil Osc 100kHz
5702	4822 156 21721	Coil 2.2μH 10%
5703	4822 156 21721	Coil 2.2μH 10%

CASSETTE BOARD PARTLIST

DIODE

6651	4822 130 30621	1N4148
6760	4822 130 34233	BZX79-C5V1
6770	4822 130 30621	1N4148
6771	4822 130 30621	1N4148
6772	4822 130 30621	1N4148
6773	4822 130 30621	1N4148
6774	4822 130 30621	1N4148
6775	4822 130 30621	1N4148
6776	4822 130 30621	1N4148
6777	4822 130 34382	BZX79-C8V2
6790	5322 130 30684	1N4002
6791	5322 130 30684	1N4002

TRANSISTOR

7631	5322 130 42136	BC848C (For -/22 & -/25)
7632	5322 130 42136	BC848C (For -/22 & -/25)
7633	5322 130 42136	BC848C (For -/22 & -/25)
7634	5322 130 42136	BC848C (For -/22 & -/25)
7650	5322 130 42136	BC848C
7651	4822 130 42513	BC858C
7652	5322 130 42136	BC848C
7653	5322 130 60123	BC807-40
7654	5322 130 42136	BC848C
7655	5322 130 60123	BC807-40
7661	5322 130 60123	BC807-40
7662	5322 130 42136	BC848C
7663	4822 130 42513	BC858C
7665	4822 130 42513	BC858C
7666	5322 130 42136	BC848C
7780	5322 130 42136	BC848C
7781	5322 130 42136	BC848C
7782	5322 130 60068	BC558C
7783	5322 130 42136	BC848C
7784	4822 130 60373	BC856B
7785	4822 130 63494	J111
7786	4822 130 63494	J111
7787	5322 130 42136	BC848C
7788	5322 130 42136	BC848C

INTERGRATED CIRCUITS

7630	4822 209 90406	CXA1101M (For -/22 & -/25)
7640	4822 209 83357	NJM4560M (For -/22 & -/25)
7710	4822 209 32919	HEF4952BT
7720	4822 209 32918	AN7318S
7730	4822 209 32919	HEF4952BT
7740	4822 209 32919	HEF4952BT
7750	5322 209 11306	HEF4094BT
7760	4822 209 32919	HEF4952BT (For -/22 & -/25)

CDC3 MODULE BOARD

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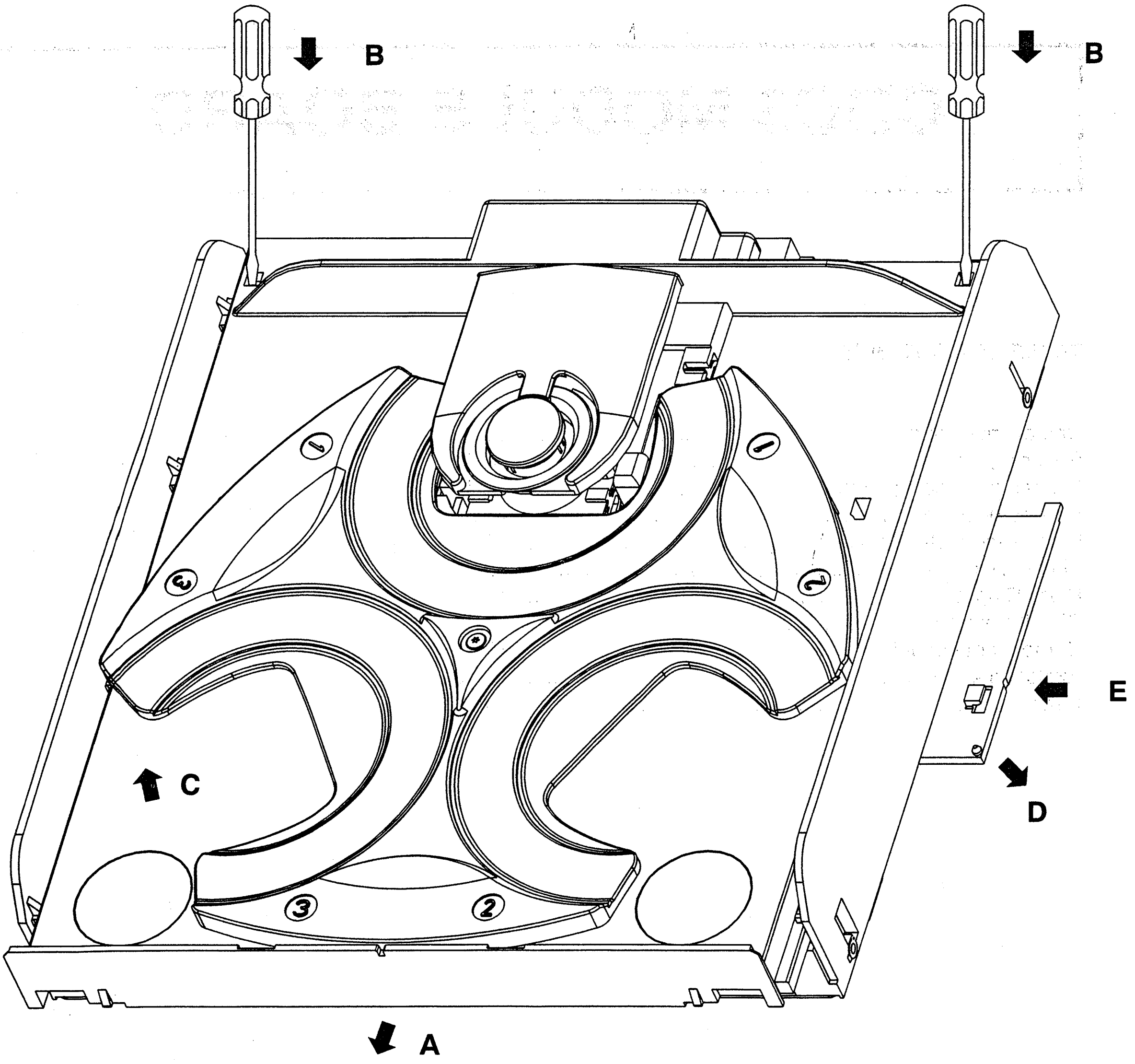
DEMOUNTING HINTS



DEMOUNTING OF DRAWER

⇒ **A** Pull drawer outwards
⇒ **B** Unlock drawer with srcrewdriver
⇒ **C** Lift drawer to demount from chassis

DEMOUNTING OF FLEX PLATE

⇒ **D** Lift plate to unlock pin from bottom plate
⇒ **E** Move plate inwards to demount from bottom plate

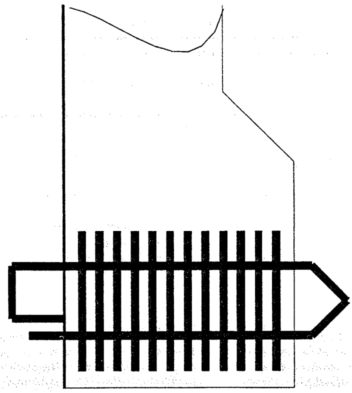
SERVICING HINTS

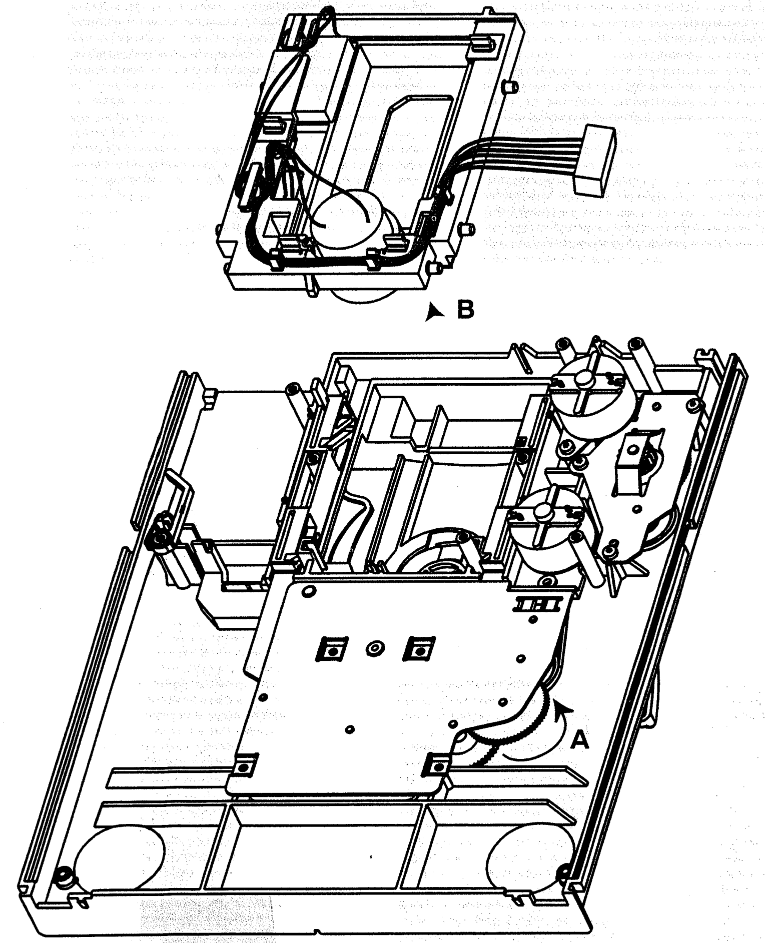
REPLACEMENT OF CDM-12.1

See also exploded view of changer mechanism.

1. Demount flex plate (140).
2. Demount printboard: remove 6 screws and desolder lips of tray motor and carrousel motor.
3. Disconnect flexfoil and JST connector of CDM from PCB. Put paperclip on flexfoil to protect CDM against laser damage.
4. Remove 2 screws 107 and 108 and demount CDM lockings 105 and 106.
5. Turn gearwheel 42 of disc-change-mechanism by finger to move CDM-support in upper position(position of carrousel between 2 discs during changing). **A**
6. Demount CDM-support 95. **B**
7. Replace CDM 100. The wire tree of JST connector has to be desoldered and resoldered on the new CDM.

CDM flex foil





MOUNTING OF CARROUSEL

1. Turn gearwheel 42 of disc change mechanism by finger until CDM is in play position.
2. Mount carrousel 115 so that disc is positioned right on the turntable. Carrousel positionnumber doesn't matter.

CD SERVO SERVICE HINTS

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CDM-ELECTRONICS WHEN CONNECTION A NEW CDM MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE
- SWITSH OFF POWER SUPPLY
- ESD PROTECTION
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:

1. Disconnect old CDM flexfoil from printed board
2. Connect paperclip to CDM flexfoil to short-circuit flexfoil (fig. 1)
3. Short-circuit printed board with **brass-sheet (4822 321 11197)** plugged into the flexfoil connector (fig. 2)
4. Remove old CDM mechanism
5. Position new CDM mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CDM
8. Connect new flexfoil to print connector (fig. 3)

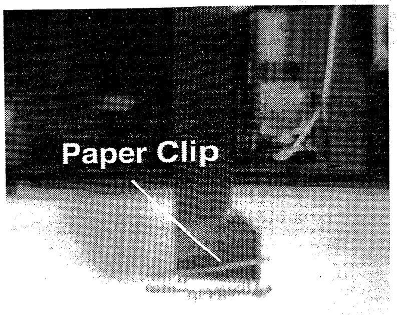


fig. 1

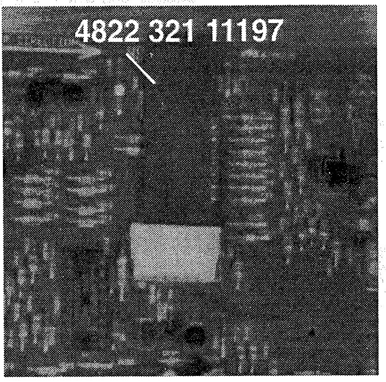


fig2

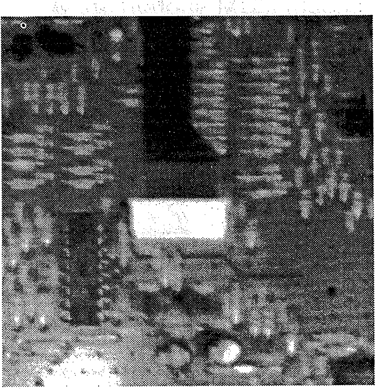
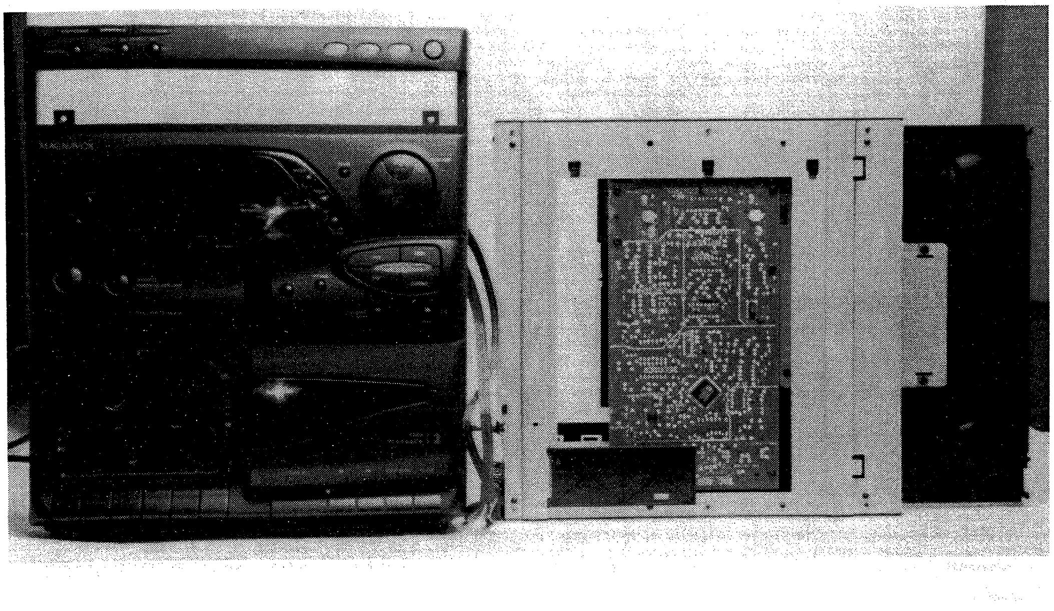
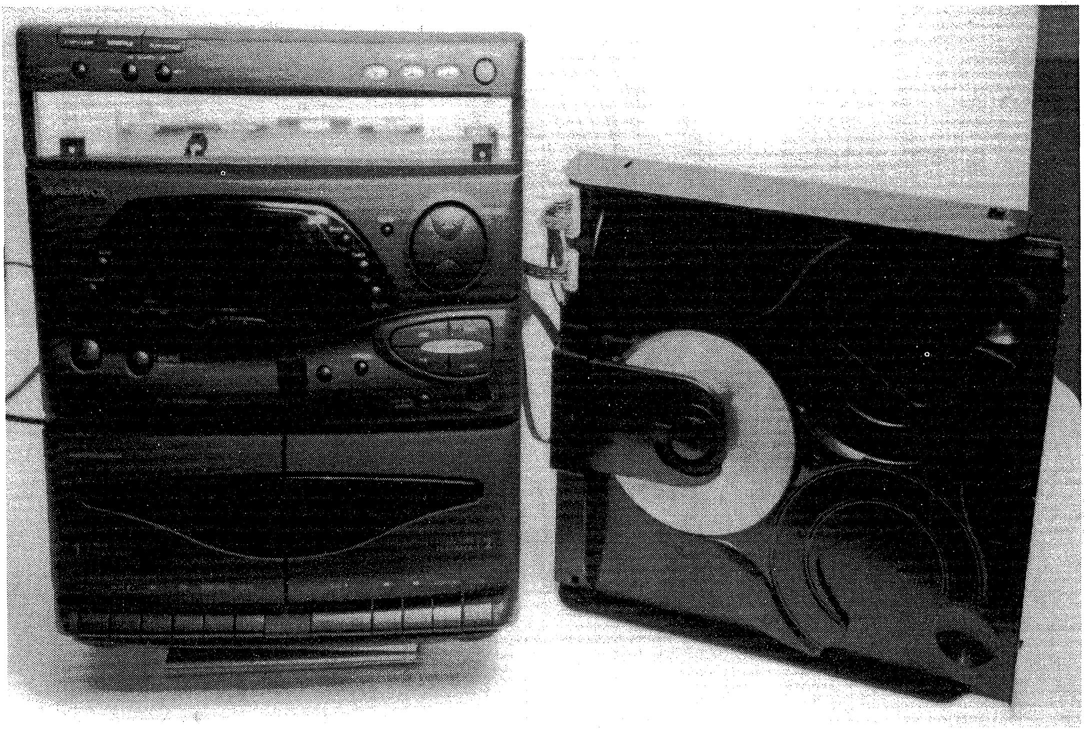


fig. 3

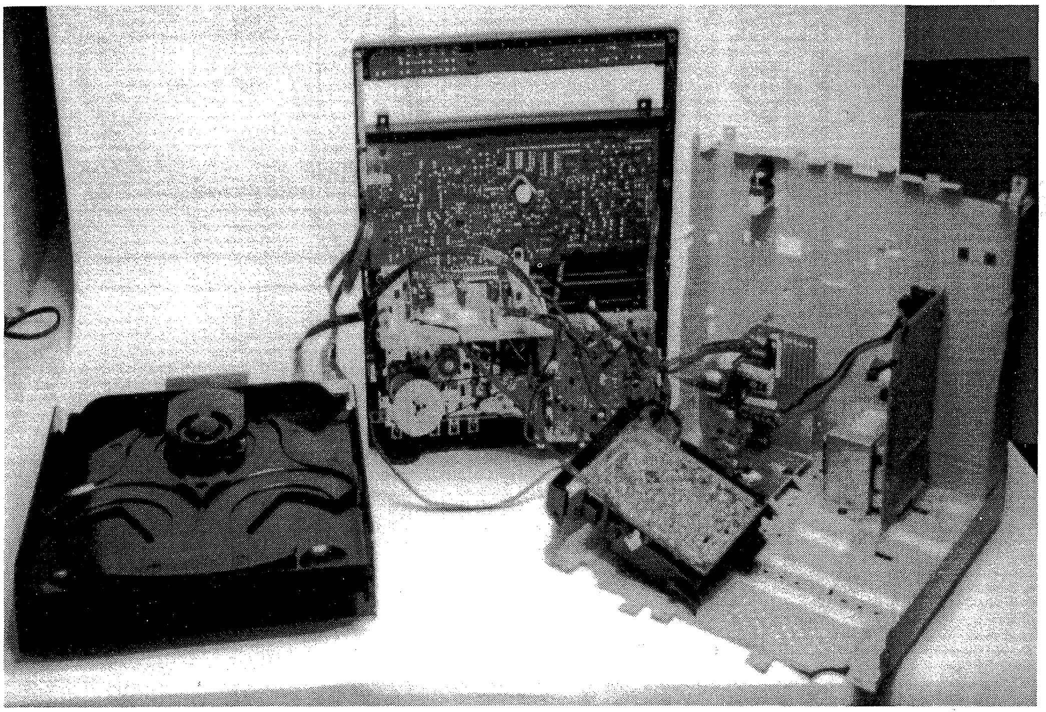
Service Position for CDC module



1) Follow the dismantling sequence shown in page 3-3 before coming to service position A.



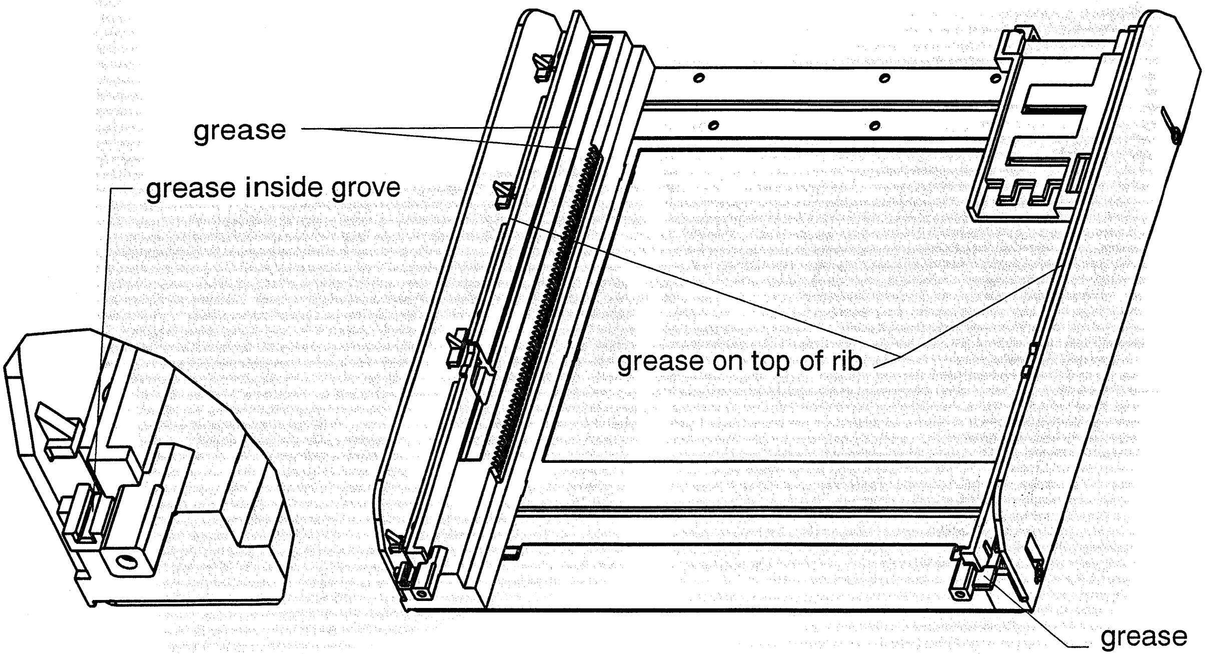
2) Service position B



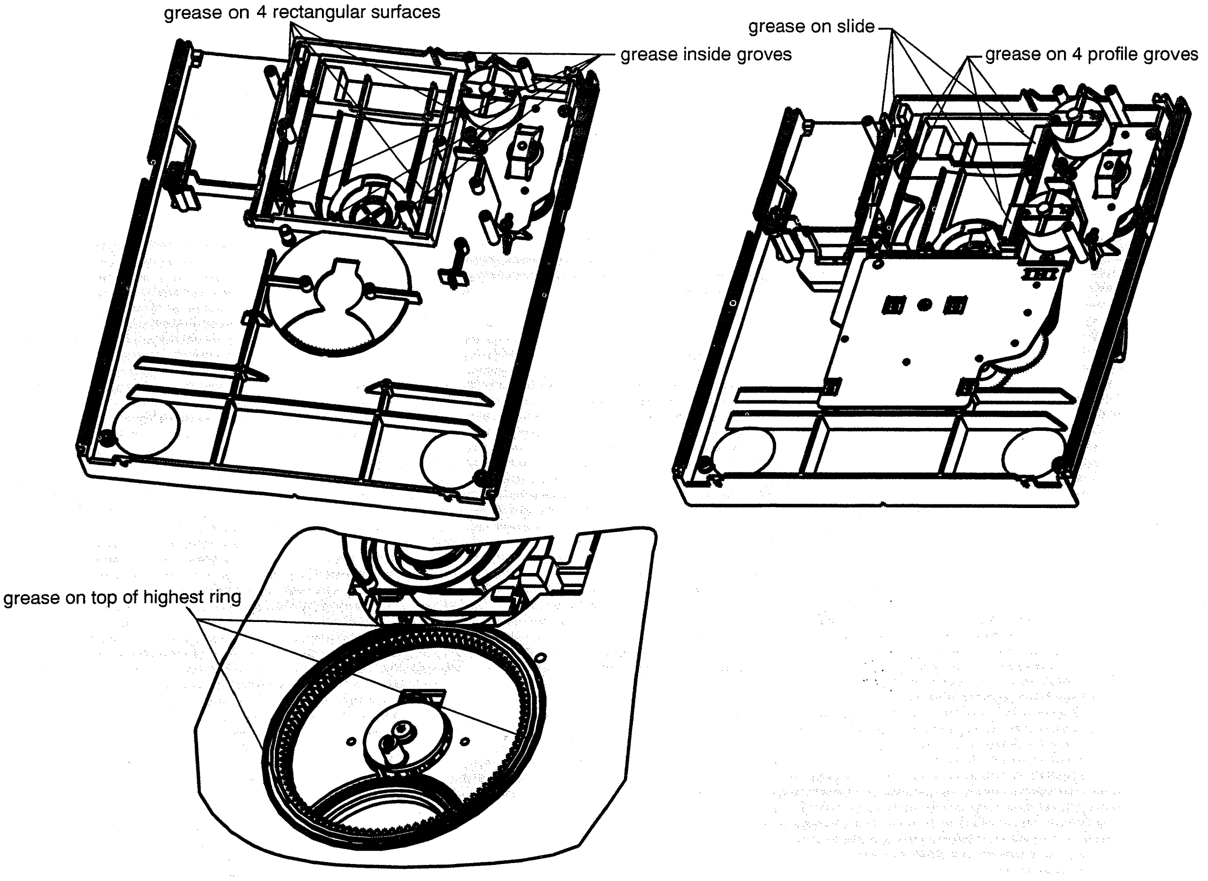
2) Service position C

LUBRICATING INSTRUCTIONS

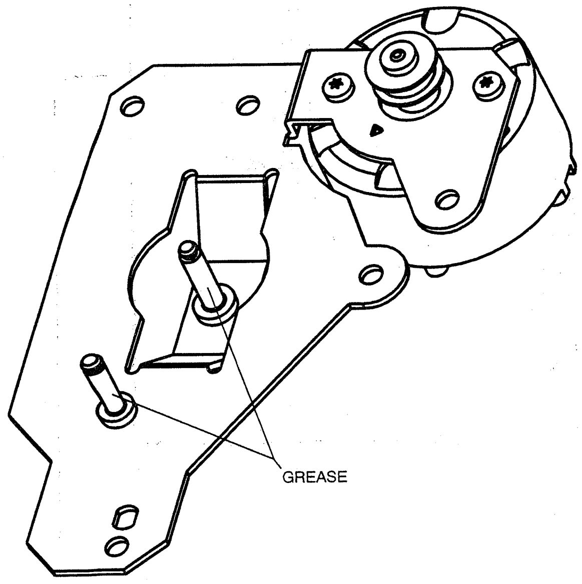
CHASSIS


grease
grease inside grove
grease on top of rib
grease

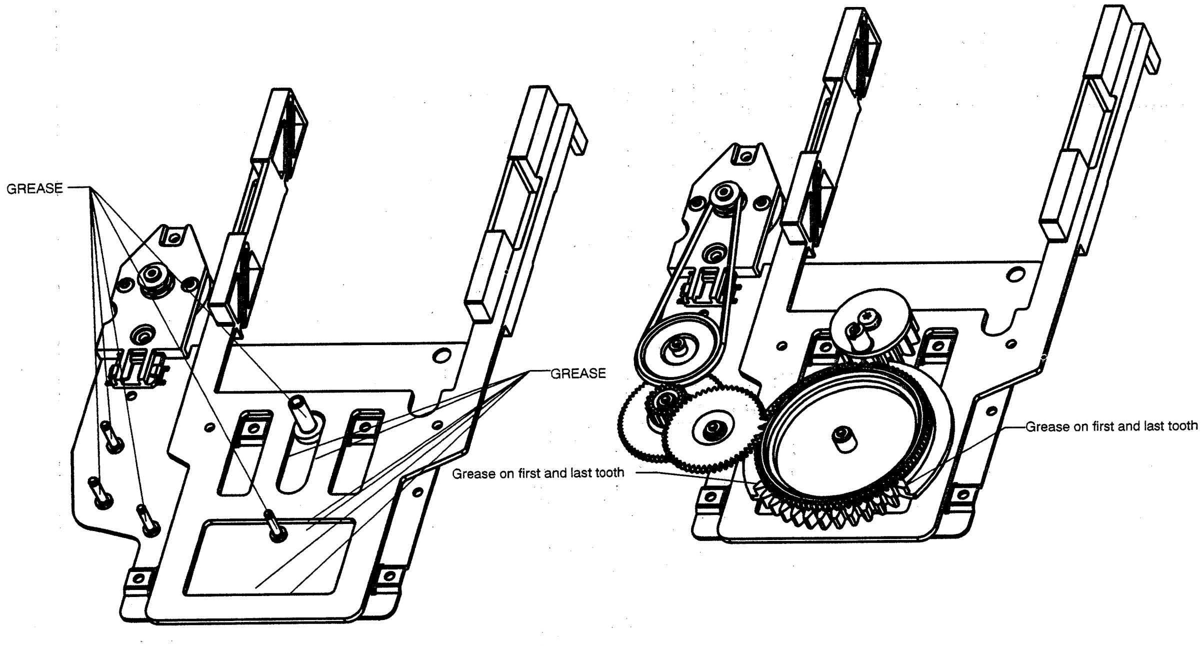
DRAWER


grease on 4 rectangular surfaces
grease inside groves
grease on slide
grease on 4 profile groves
grease on top of highest ring

DRAWER MECHANISM

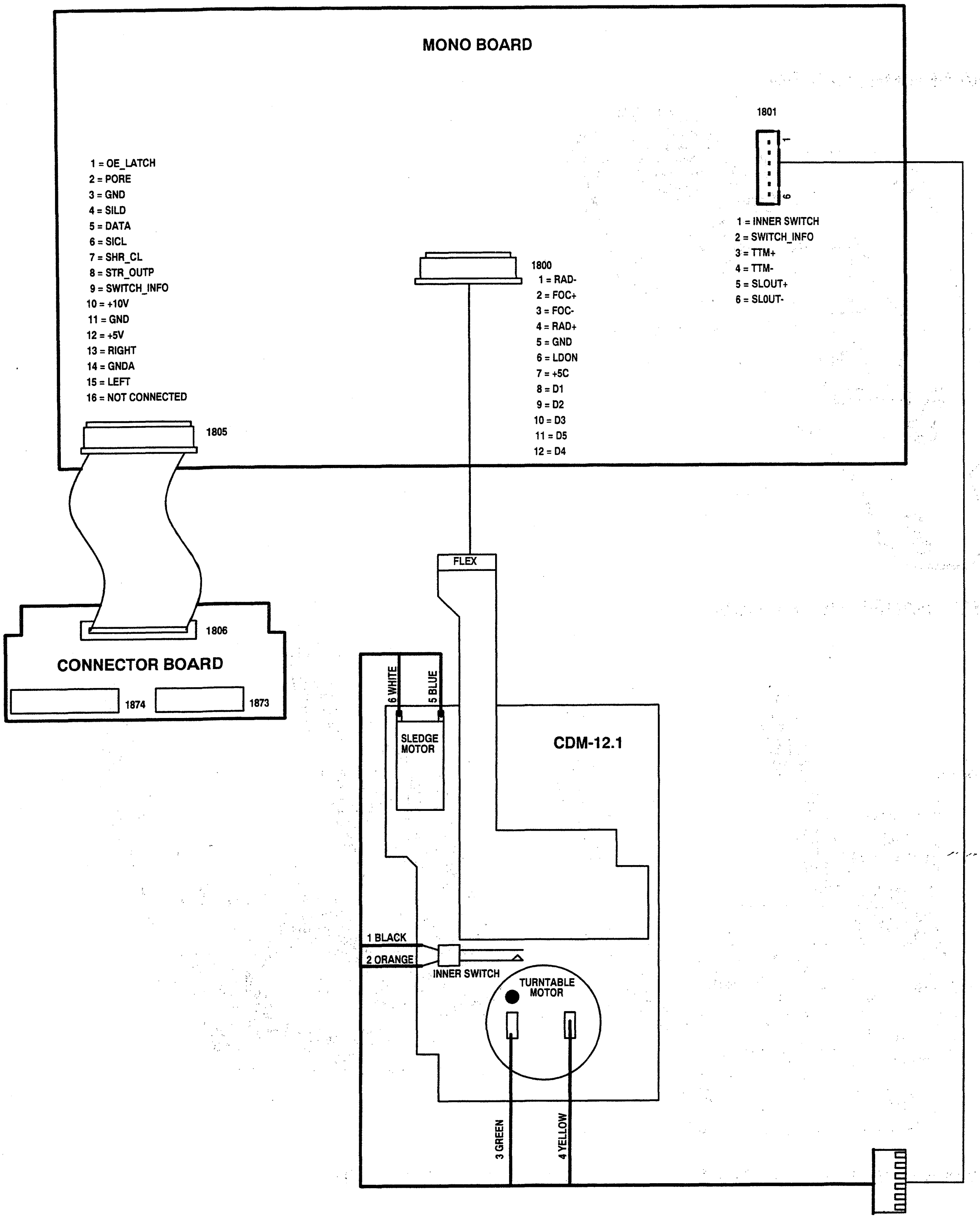


DISC-CHANGE MECHANISM

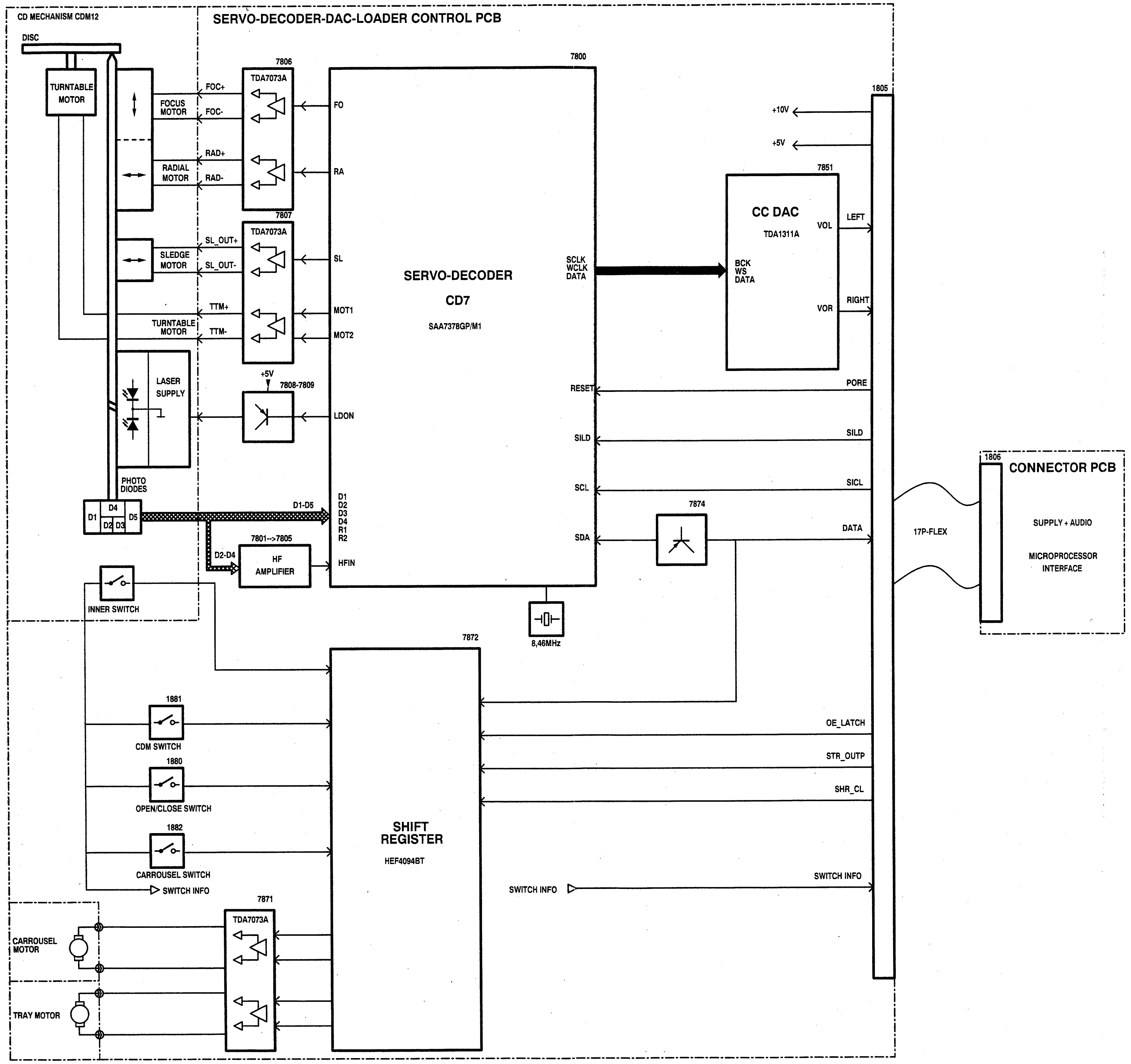

GREASE
GREASE
Grease on first and last tooth
Grease on first and last tooth

Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

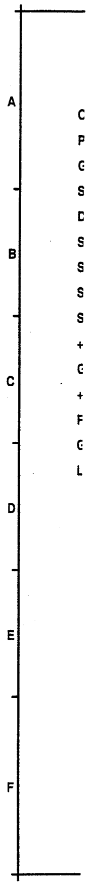
WIRING DIAGRAM

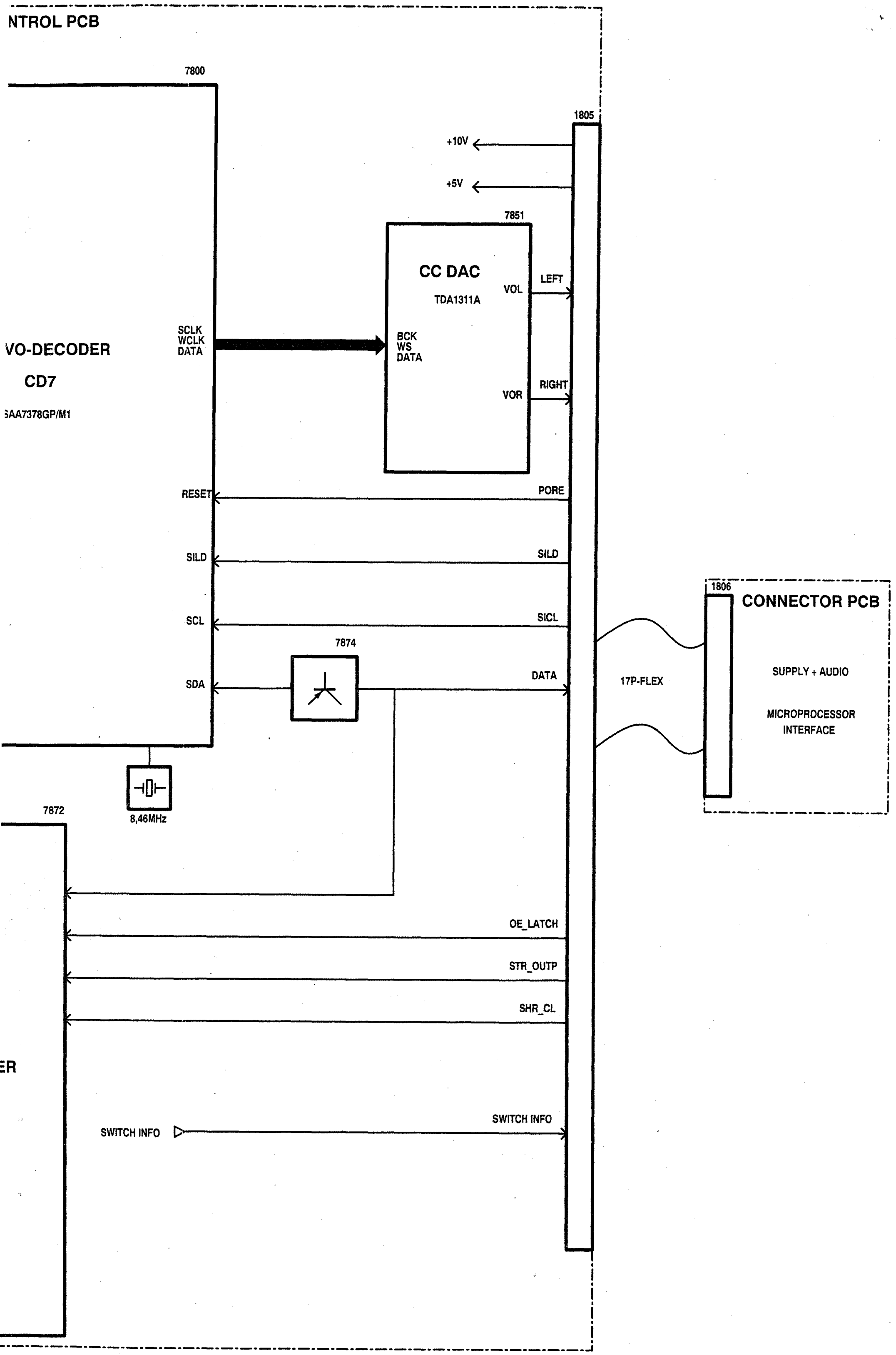

MONO BOARD
1 = OE_LATCH
2 = PORE
3 = GND
4 = SILD
5 = DATA
6 = SICL
7 = SHR_CL
8 = STR_OUTP
9 = SWITCH_INFO
10 = +10V
11 = GND
12 = +5V
13 = RIGHT
14 = GNDA
15 = LEFT
16 = NOT CONNECTED
1805
1800
1 = RAD-
2 = FOC+
3 = FOC-
4 = RAD+
5 = GND
6 = LDON
7 = +5C
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
1801
1
6
1 = INNER SWITCH
2 = SWITCH_INFO
3 = TTM+
4 = TTM-
5 = SLOUT+
6 = SLOUT-
1806
CONNECTOR BOARD
1874
1873
FLEX
6 WHITE
5 BLUE
SLEDGE MOTOR
CDM-12.1
1 BLACK
2 ORANGE
INNER SWITCH
TURNTABLE MOTOR
3 GREEN
4 YELLOW

BLOCK DIAGRAM

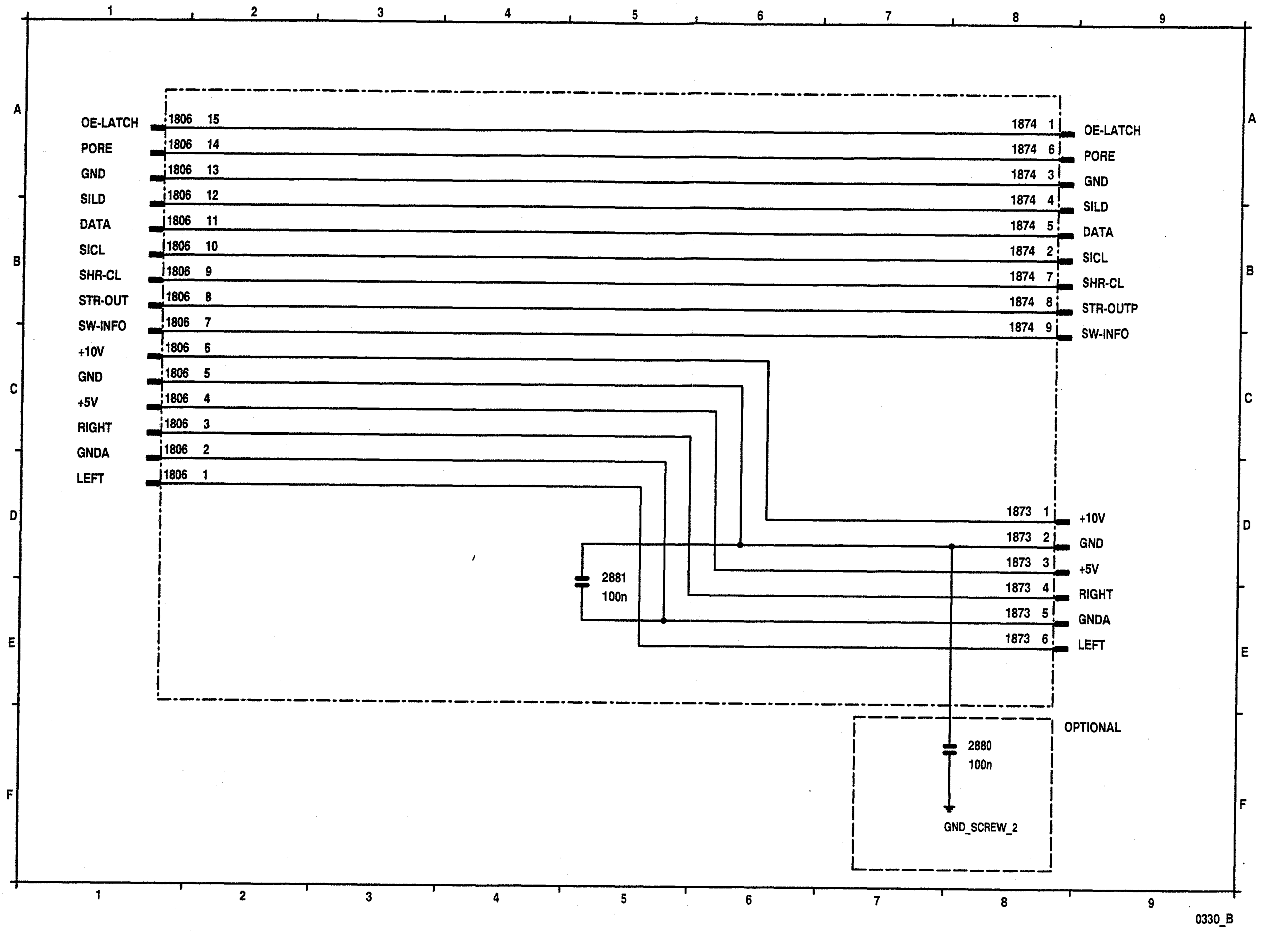

CD MECHANISM CDM12
SERVO-DECODER-DAC-LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
RADIAL MOTOR
SLEDGE MOTOR
TURNTABLE MOTOR
LASER SUPPLY
PHOTO DIODES
D1
D2
D3
D4
D5
FOC+
FOC-
RAD+
RAD-
SL_OUT+
SL_OUT-
TTM+
TTM-
7806
TDA7073A
7807
TDA7073A
+5V
7808-7809
D1-D5
7801-->7805
D2-D4
HF AMPLIFIER
7800
FO
RA
SL
MOT1
MOT2
LDON
D1 D2 D3 D4 R1 R2
HFIN
SERVO-DECODER
CD7
SAA7378GP/M1
SCLK WCLK DATA
RESET
SILD
SCL
SDA
8,46MHz
7851
CC DAC
TDA1311A
BCK WS DATA
VOL
VOR
LEFT
RIGHT
+10V
+5V
1805
PORE
SILD
SICL
DATA
7874
17P-FLEX
1806
CONNECTOR PCB
SUPPLY + AUDIO
MICROPROCESSOR INTERFACE
INNER SWITCH
7872
1881
CDM SWITCH
1880
OPEN/CLOSE SWITCH
1882
CARROUSEL SWITCH
SWITCH INFO
SHIFT REGISTER
HEF4094BT
OE_LATCH
STR_OUTP
SHR_CL
SWITCH INFO
SWITCH INFO
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR

CONN

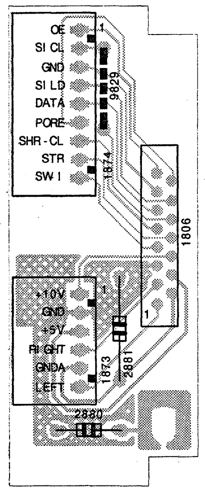



NTROL PCB
7800
VO-DECODER
CD7
SAA7378GP/M1
SCLK
WCLK
DATA
7851
CC DAC
TDA1311A
BCK
WS
DATA
VOL
VOR
LEFT
RIGHT
+10V
+5V
1805
RESET
PORE
SILD
SCL
SICL
SDA
7874
DATA
8,46MHz
7872
OE_LATCH
STR_OUTP
SHR_CL
ER
SWITCH INFO
SWITCH INFO
17P-FLEX
1806
CONNECTOR PCB
SUPPLY + AUDIO
MICROPROCESSOR
INTERFACE

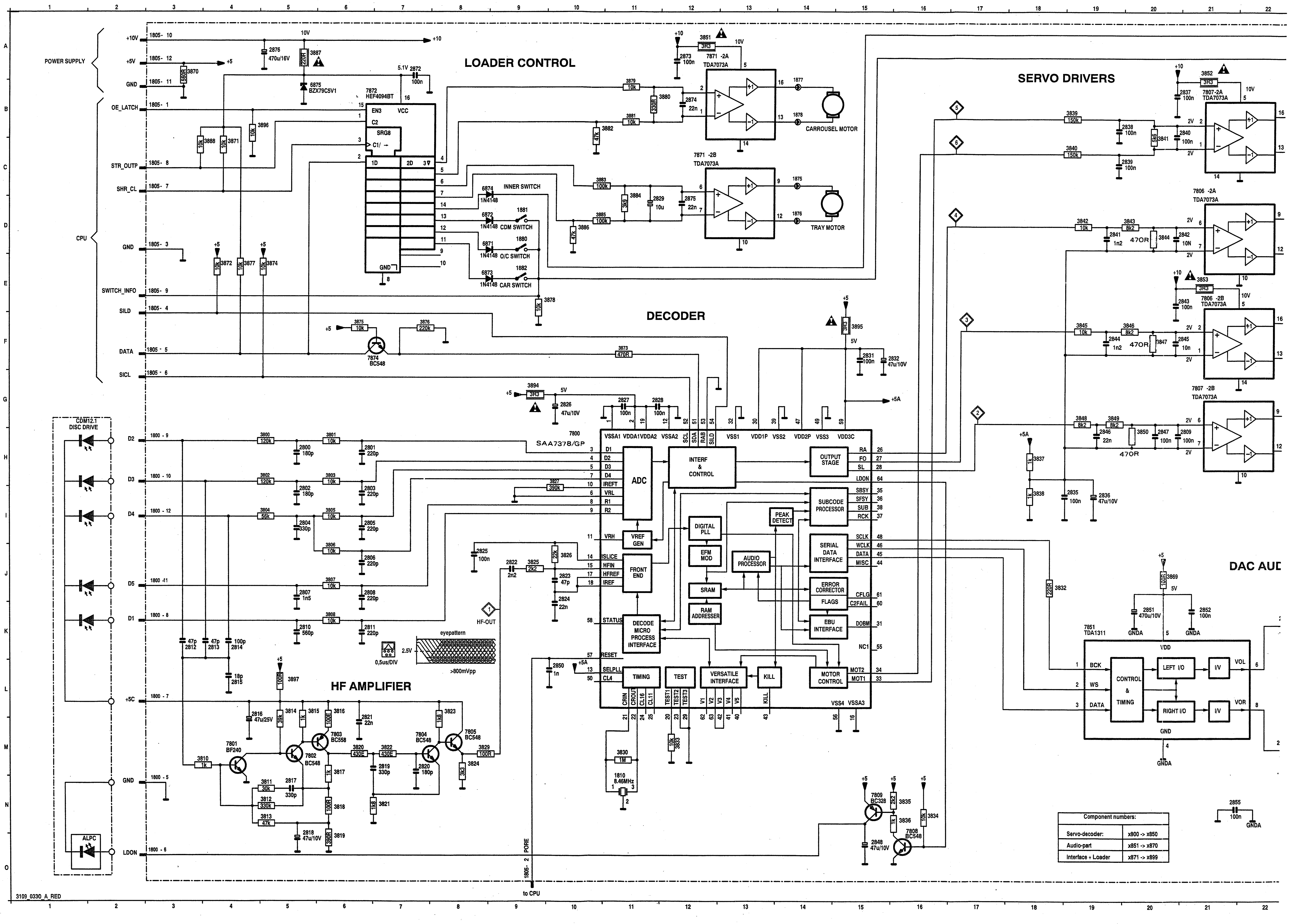
CONNECTOR WIRING AND LAYOUT

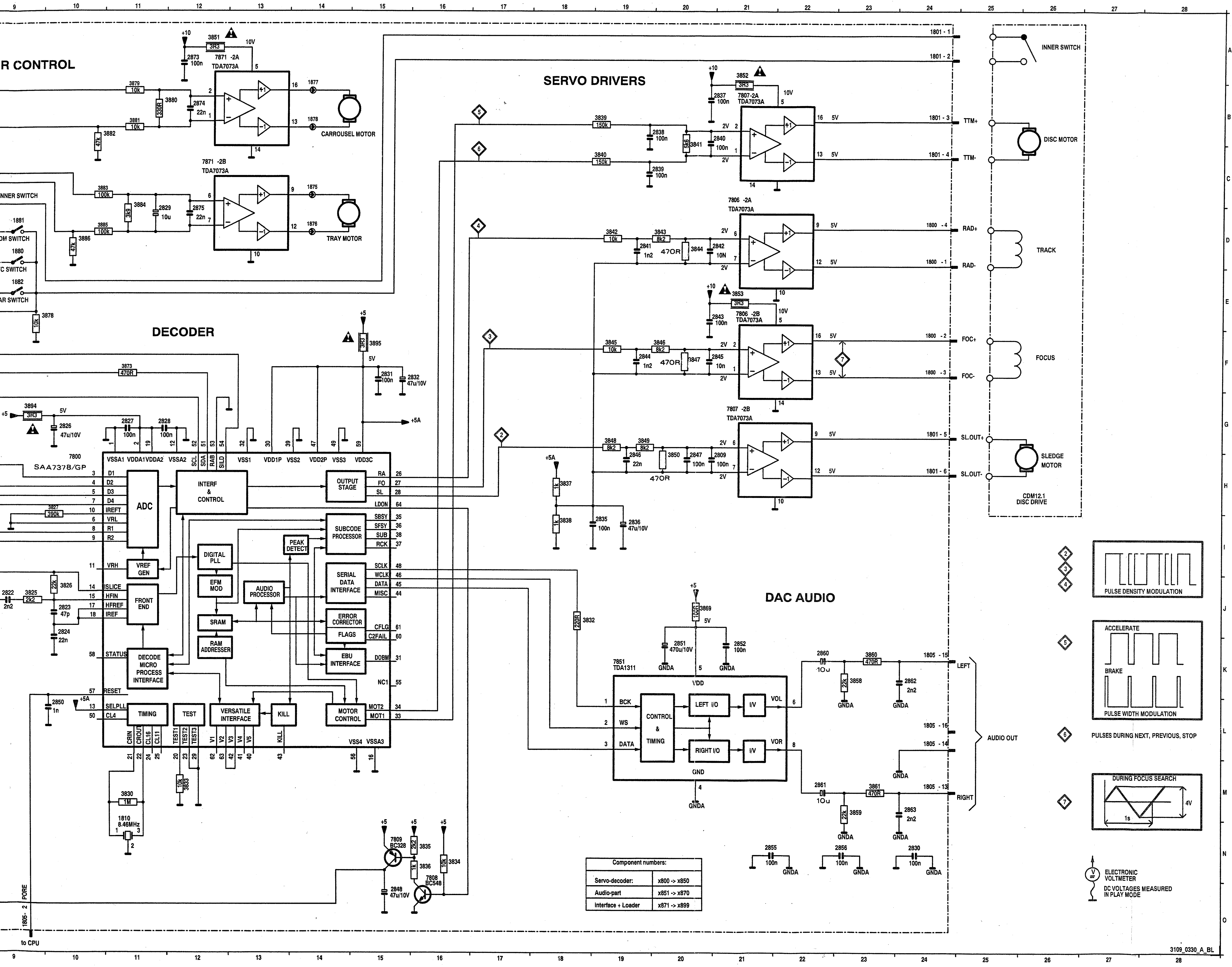

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
OE-LATCH
PORE
GND
SILD
DATA
SICL
SHR-CL
STR-OUT
SW-INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
1806 15
1806 14
1806 13
1806 12
1806 11
1806 10
1806 9
1806 8
1806 7
1806 6
1806 5
1806 4
1806 3
1806 2
1806 1
1874 1
1874 6
1874 3
1874 4
1874 5
1874 2
1874 7
1874 8
1874 9
OE-LATCH
PORE
GND
SILD
DATA
SICL
SHR-CL
STR-OUTP
SW-INFO
2881
100n
1873 1
1873 2
1873 3
1873 4
1873 5
1873 6
+10V
GND
+5V
RIGHT
GNDA
LEFT
OPTIONAL
2880
100n
GND_SCREW_2
0330_B

1806	D 1
1806	D 1
1806	C 1
1806	C 1
1806	C 1
1806	C 1
1806	C 1
1806	B 1
1806	B 1
1806	B 1
1806	B 1
1806	B 1
1806	A 1
1806	A 1
1806	A 1
1873	D 8
1873	D 8
1873	D 8
1873	E 8
1873	E 8
1873	E 8
1874	A 8
1874	B 8
1874	A 8
1874	B 8
1874	B 8
1874	A 8
1874	B 8
1874	B 8
1874	C 8
2880	F 8
2881	D 5


OE
SI CL
GND
SI LD
DATA
PORE
SHR - CL
STR
SW I
1
2829
1874
1806
+10V
GND
+5V
RIGHT
GNDA
LEFT
1
1873
2881
1
2880

CDC CIRCUIT


LOADER CONTROL
SERVO DRIVERS
DECODER
HF AMPLIFIER
DAC AUD
POWER SUPPLY
CPU
+10V
+5V
GND
OE_LATCH
STR_OUTP
SHR_CL
SWITCH_INFO
SILD
DATA
SICL
CDM12.1 DISC DRIVE
D2
D3
D4
D5
D1
+5C
LDON
ALPC
7872 HEF4094BT
7871 -2A TDA7073A
7871 -2B TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
INNER SWITCH
CDM SWITCH
O/C SWITCH
CAR SWITCH
6875 BZX79C5V1
7874 BC548
7800 SAA7378/GP
ADC
INTERF & CONTROL
OUTPUT STAGE
SUBCODE PROCESSOR
PEAK DETECT
DIGITAL PLL
EFM MOD
AUDIO PROCESSOR
SERIAL DATA INTERFACE
VREF GEN
FRONT END
SRAM
ERROR CORRECTOR
FLAGS
RAM ADDRESSER
EBU INTERFACE
DECODE MICRO PROCESS INTERFACE
TIMING
TEST
VERSATILE INTERFACE
KILL
MOTOR CONTROL
1810 8.46MHz
HF-OUT
eyepattern
2.5V
0,5us/DIV
>800mVpp
7801 BF240
7802 BC548
7803 BC558
7804 BC548
7805 BC548
7806 -2A TDA7073A
7806 -2B TDA7073A
7807 -2A TDA7073A
7807 -2B TDA7073A
7809 BC328
7808 BC548
7851 TDA1311
CONTROL & TIMING
LEFT I/O
RIGHT I/O
I/V
BCK
WS
DATA
VOL
VOR
GNDA
Component numbers:
Servo-decoder: x800 -> x850
Audio-part x851 -> x870
Interface + Loader x871 -> x899
1805 - 2 PORE
to CPU
3109_0330_A_RED

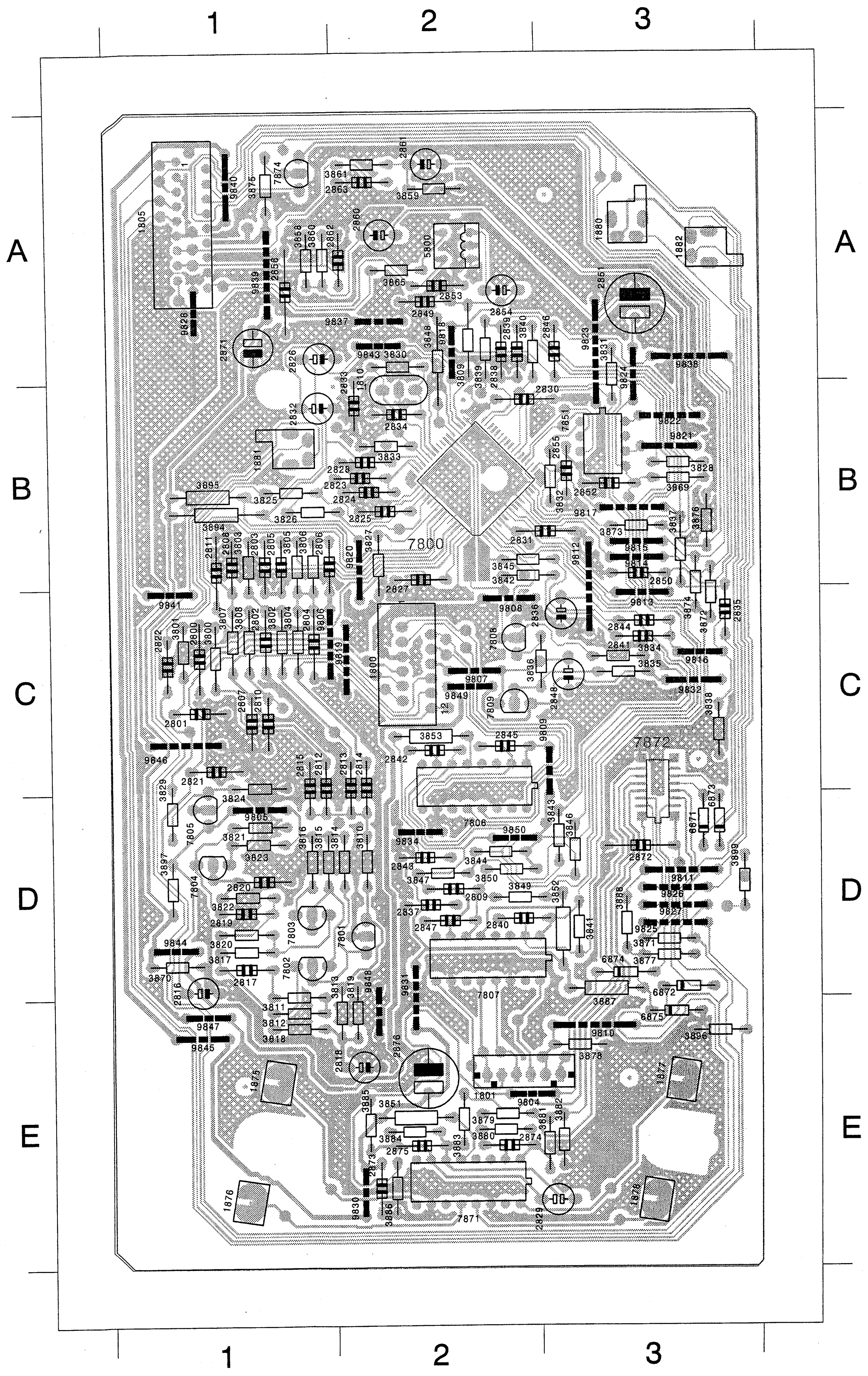

R CONTROL
SERVO DRIVERS
DECODER
DAC AUDIO
CARROUSEL MOTOR
TRAY MOTOR
INNER SWITCH
DISC MOTOR
TRACK
FOCUS
SLEDGE MOTOR
CDM12.1 DISC DRIVE
TTM+
TTM-
RAD+
RAD-
FOC+
FOC-
SL.OUT+
SL.OUT-
7871 -2A TDA7073A
7871 -2B TDA7073A
7807-2A TDA7073A
7806 -2A TDA7073A
7806 -2B TDA7073A
7807 -2B TDA7073A
7800 SAA7378/GP
ADC
INTERF & CONTROL
OUTPUT STAGE
SUBCODE PROCESSOR
PEAK DETECT
DIGITAL PLL
EFM MOD
AUDIO PROCESSOR
SERIAL DATA INTERFACE
ERROR CORRECTOR
FLAGS
EBU INTERFACE
VREF GEN
FRONT END
SRAM
RAM ADDRESSER
DECODE MICRO PROCESS INTERFACE
TIMING
TEST
VERSATILE INTERFACE
KILL
MOTOR CONTROL
7851 TDA1311
CONTROL & TIMING
LEFT I/O
RIGHT I/O
I/V
VOL
VOR
BCK
WS
DATA
VDD
GND
LEFT
RIGHT
AUDIO OUT
1810 8.46MHz
7809 BC328
7808 BC548
1805 - 2 PORE
to CPU
PULSE DENSITY MODULATION
ACCELERATE
BRAKE
PULSE WIDTH MODULATION
PULSES DURING NEXT, PREVIOUS, STOP
DURING FOCUS SEARCH
4V
1s
ELECTRONIC VOLTMETER
DC VOLTAGES MEASURED IN PLAY MODE
3109_0330_A_BL

Component numbers:

Servo-decoder:	x800 -> x850
Audio-part	x851 -> x870
Interface + Loader	x871 -> x899

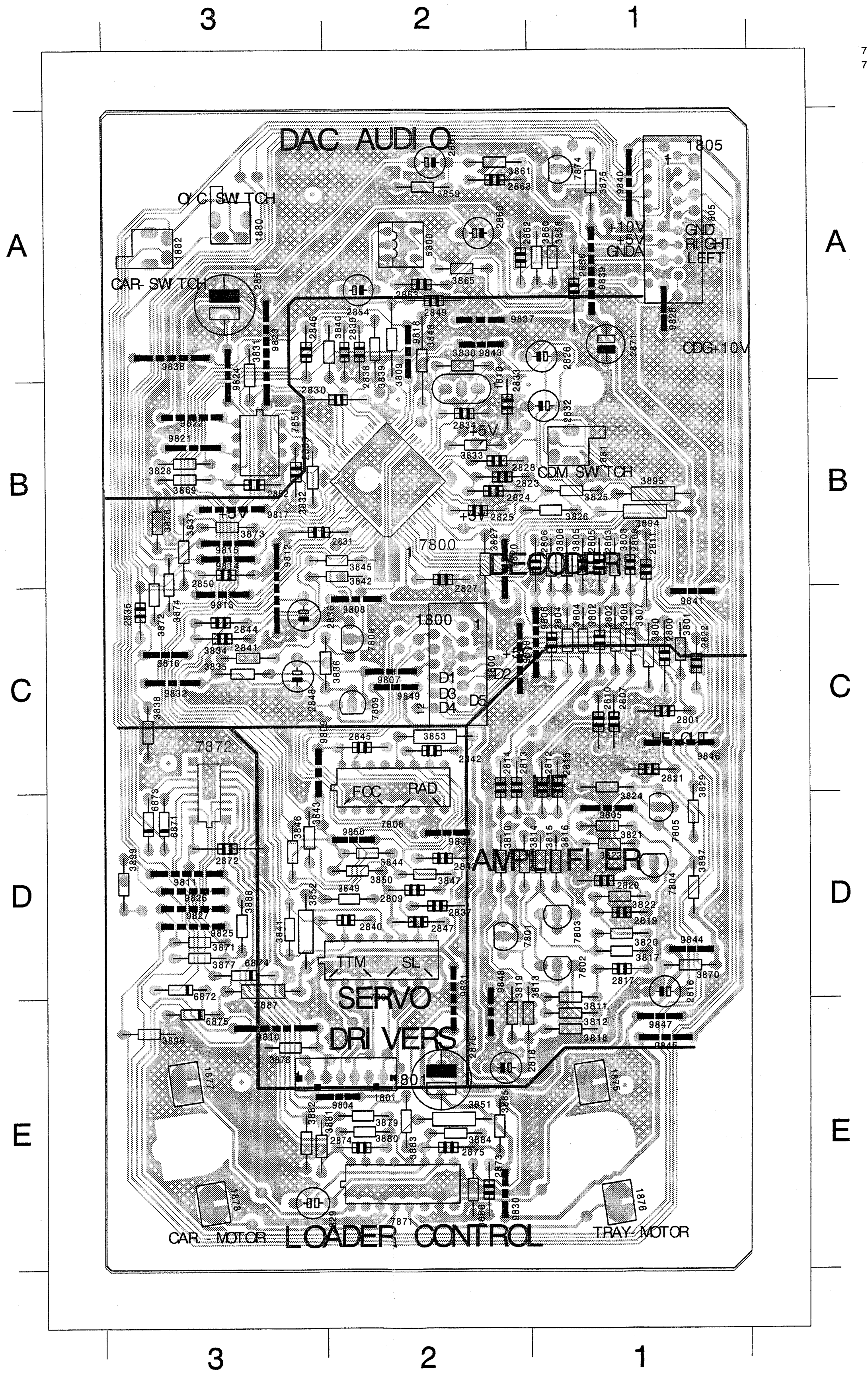
1800	D24
1800	F24
1800	F24
1800	D24
1800	N 3
1800	O 3
1800	L 3
1800	K 3
1800	H 3
1800	H 3
1800	J 3
1800	I 3
1801	A24
1801	A24
1801	B24
1801	C24
1801	G24
1801	H24
1805	B 3
1805	O 9
1805	D 3
1805	E 3
1805	F 3
1805	G 3
1805	C 3
1805	C 3
1805	E 3
1805	A 3
1805	B 3
1805	A 3
1805	M24
1805	L24
1805	K24
1805	L24
1805	O13
1810	N11
1880	D 9
1881	D 9
1882	E 9
2800	H 5
2801	H 6
2802	I 5
2803	I 6
2804	I 5
2805	I 6
2806	J 6
2807	J 5
2808	J 6
2809	H21
2810	K 5
2811	K 6
2812	K 3
2813	K 4
2814	K 4
2815	L 4
2816	L 4
2817	N 5
2818	O 5
2819	M 7
2820	M 7
2821	M 6
2822	J 9
2823	J10
2824	J10
2825	J 8
2826	G10
2827	G11
2828	G11
2829	D11
2830	N24
2831	F15
2832	F16
2835	I19
2836	I19
2837	B20
2838	B19
2839	C19
2840	B20
2841	D19
2842	D20
2843	E20
2844	F19
2845	F20
2846	H19
2847	H20
2848	O15
2850	L10
2851	K20
2852	K21
2855	N21
2856	N23
2860	K22
2861	M22
2862	K24
2863	M24
2872	A 7
2873	A12
2874	B12
2875	D12
2876	A 5
3800	H 5
3801	H 6
3802	H 5
3803	H 6
3804	I 5
3805	I 6
3806	J 6
3807	J 6
3808	K 6
3810	M 4
3811	N 5
3812	N 5
3813	N 5
3814	L 5
3815	L 5
3816	L 6
3817	M 6
3818	N 6
3819	O 6
3820	M 6
3821	N 7
3822	M 7
3823	L 8
3824	M 8
3825	J 9
3826	J10
3827	H10
3829	M 8
3830	M11
3832	J18
3833	M12
3834	N16
3835	N16
3836	N16
3837	H18
3838	I18
3839	B19
3840	C19
3841	C20
3842	D19
3843	D20
3844	D20
3845	F19
3846	F20
3847	F20
3848	G19
3849	G19
3850	H20
3851	A12
3852	A21
3853	E21
3858	K23
3859	M23
3860	K23
3861	M23
3869	J20
3870	A 3
3871	C 4
3872	E 4
3873	F11
3874	E 5
3875	F 6
3876	F 7
3877	E 4
3878	E 9
3879	B11
3880	B11
3881	B11
3882	B10
3883	C10
3884	D11
3885	D10
3886	D10
3887	A 5
3888	C 4
3894	G 9
3895	F15
3896	B 4
3897	L 5
6871	D 9
6872	D 9
6873	E 9
6874	C 9
6875	B 6
7800	H10
7801	M 4
7802	M 5
7803	M 6
7804	M 7
7805	M 8
7806	E21
7806	C21
7807	B21
7807	G21
7808	N16
7809	N15
7851	K19
7871	A12
7871	C12
7872	B 6
7874	F 6

CDC LAYOUT-COMPONENT VIEW


1
2
3
A
B
C
D
E
7800
7872
1805
1880
1882

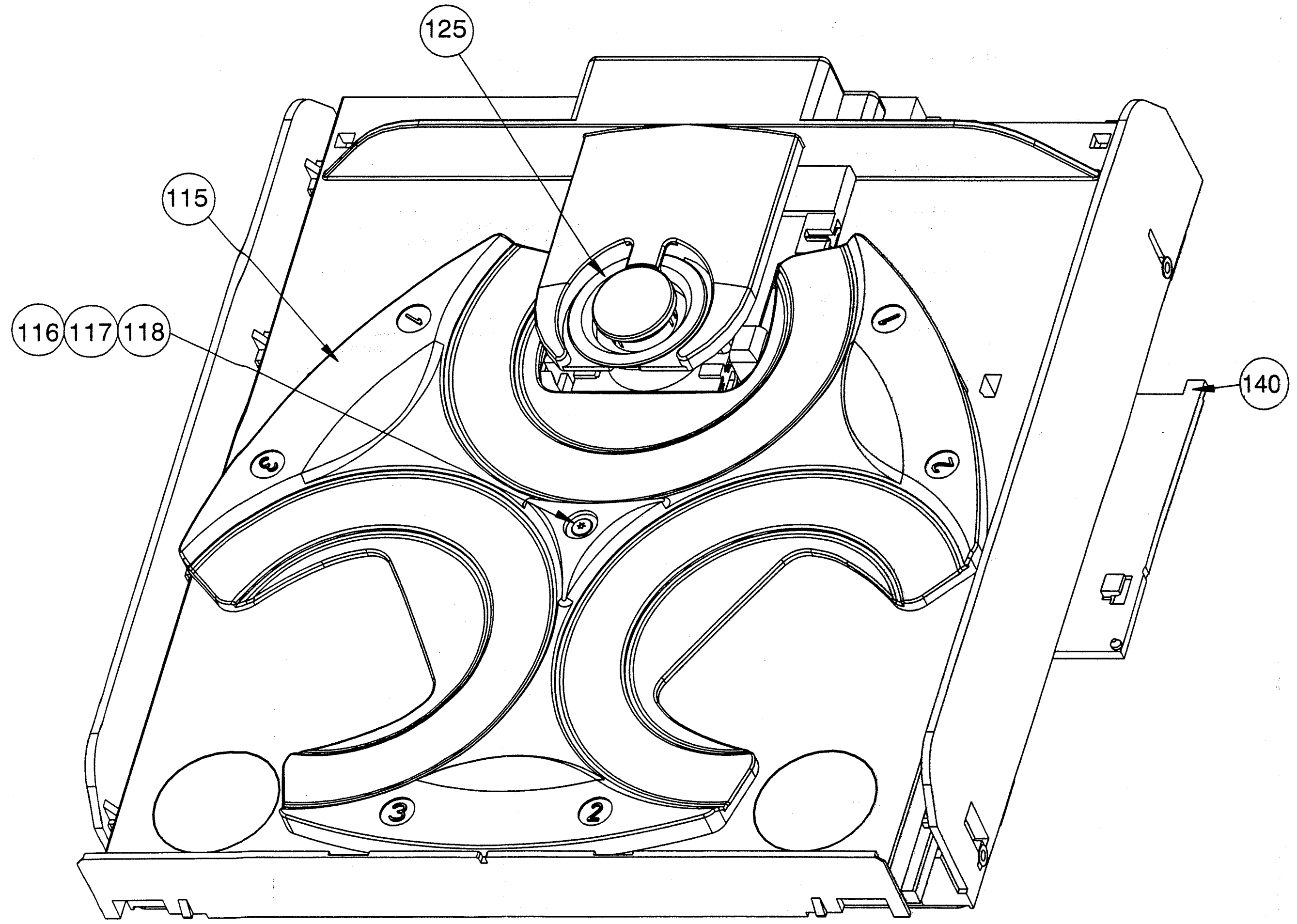
1800	C 2
1801	E 2
1805	A 1
1810	B 2
1875	E 1
1876	E 1
1877	E 3
1878	E 3
1880	A 3
1881	B 1
1882	A 3
2800	C 1
2801	C 1
2802	C 1
2803	B 1
2804	C 1
2805	B 1
2806	B 1
2807	C 1
2808	B 1
2809	D 2
2810	C 1
2811	B 1
2812	C 1
2813	C 2
2814	C 2
2815	C 1
2816	D 1
2817	D 1
2818	E 2
2819	D 1
2820	D 1
2821	C 1
2822	C 1
2823	B 2
2824	B 2
2825	B 2
2826	A 1
2827	B 2
2828	B 2
2829	E 3
2830	B 2
2831	B 3
2832	B 1
2833	B 2
2834	B 2
2835	C 3
2836	C 3
2837	D 2
2838	A 2
2839	A 2
2840	D 2
2841	C 3
2842	C 2
2843	D 2
2844	C 3
2845	C 2
2846	A 3
2847	D 2
2848	C 3
2849	A 2
2850	B 3
2851	A 3
2852	B 3
2853	A 2
2854	A 2
2855	B 3
2856	A 1
2860	A 2
2861	A 2
2862	A 2
2863	A 2
2871	A 1
2872	D 3
2873	E 2
2874	E 2
2875	E 2
2876	E 2
3800	C 1
3801	C 1
3802	C 1
3803	B 1
3804	C 1
3805	B 1
3806	B 1
3807	C 1
3808	C 1
3809	A 2
3810	D 2
3811	D 1
3812	E 1
3813	E 2
3814	D 2
3815	D 1
3816	D 1
3817	D 1
3818	E 1
3819	E 2
3820	D 1
3821	D 1
3822	D 1
3823	D 1
3824	C 1
3825	B 1
3826	B 1
3827	B 2
3828	B 3
3829	D 1
3830	A 2
3831	A 3
3832	B 3
3833	B 2
3834	C 3
3835	C 3
3836	C 3
3837	B 3
3838	C 3
3839	A 2
3840	A 2
3841	D 3
3842	B 2
3843	D 3
3844	D 2
3845	B 2
3846	D 3
3847	D 2
3848	A 2
3849	D 2
3850	D 2
3851	E 2
3852	D 3
3853	C 2
3858	A 1
3859	A 2
3860	A 1
3861	A 2
3865	A 2
3869	B 3
3870	D 1
3871	D 3
3872	C 3
3873	B 3
3874	B 3
3875	A 1
3876	B 3
3877	D 3
3878	E 3
3879	E 2
3880	E 2
3881	E 3
3882	E 3
3883	E 2
3884	E 2
3885	E 2
3886	E 2
3887	D 3
3888	D 3
3894	B 1
3895	B 1
3896	E 3
3897	D 1
3899	D 3
5800	A 2
6871	D 3
6872	D 3
6873	D 3
6874	D 3
6875	E 3
7800	B 2
7801	D 2
7802	D 1
7803	D 1
7804	D 1
7805	D 1
7806	C 2
7807	D 2
7808	C 2
7809	C 2
7851	B 3
7871	E 2
7872	C 3
7874	A 1
9804	E 2
9805	D 1
9806	C 1
9807	C 2
9808	C 2
9809	C 3
9810	E 3
9811	D 3
9812	C 3
9813	C 3
9814	B 3
9815	B 3
9816	C 3
9817	B 3
9818	A 2
9819	C 2
9820	B 2
9821	B 3
9822	B 3
9823	A 3
9824	A 3
9825	D 3
9826	D 3
9827	D 3
9828	A 1
9830	E 2
9831	E 2
9832	C 3
9834	D 2
9837	A 2
9838	A 3
9839	A 1
9840	A 1
9841	C 1
9843	A 2
9844	D 1
9845	E 1
9846	C 1
9847	E 1
9848	E 2
9849	C 2
9850	D 2

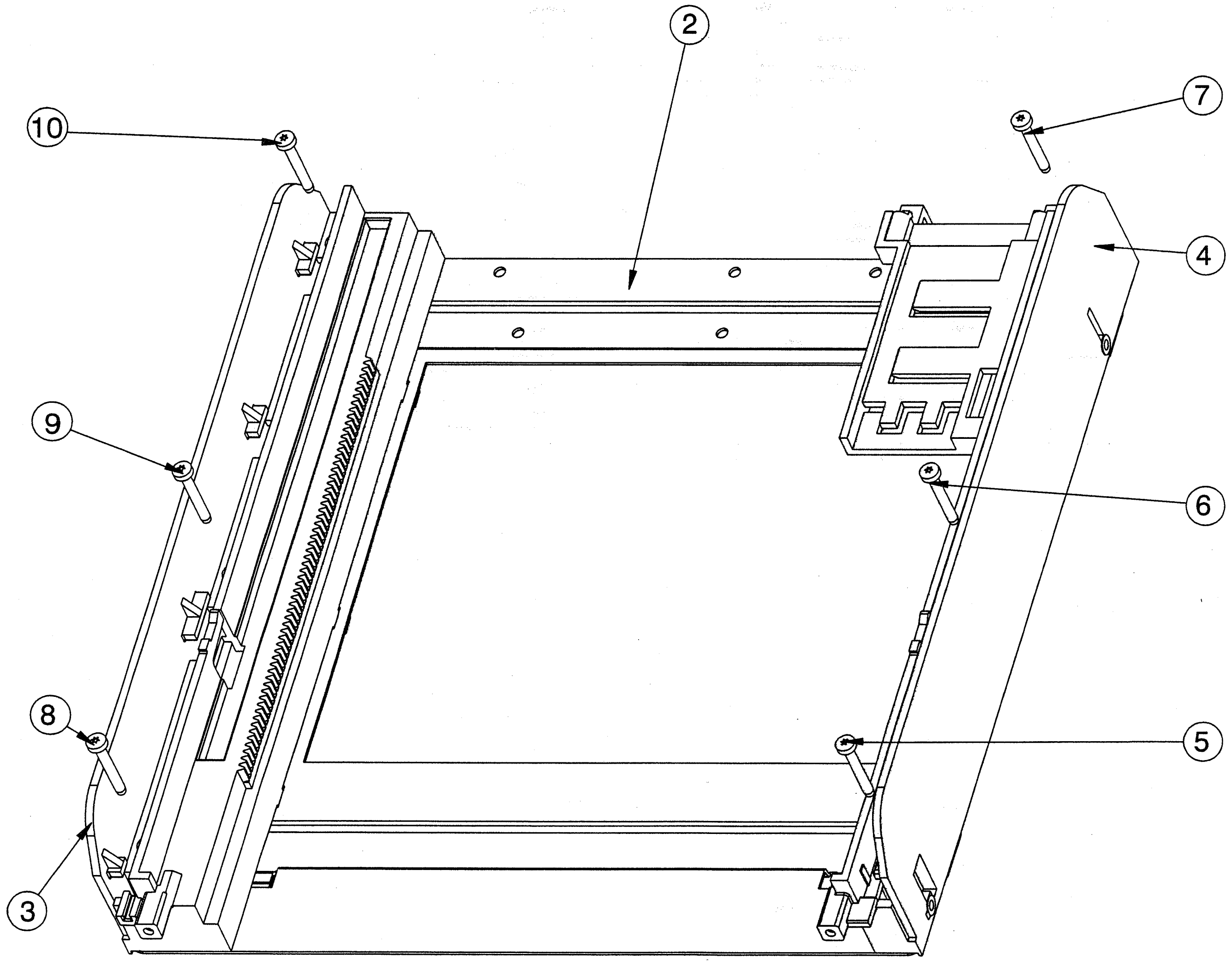
CDC LAYOUT-COPPER VIEW


3
2
1
A
B
C
D
E
DAC AUDIO
O/C SWITCH
CAR-SWITCH
1805
+10V
+5V
GNDA
GND
RIGHT
LEFT
CDG+10V
CDM SWITCH
+5V
7800
DECODER
1800
D1
D2
D3
D4
D5
HF-OUT
7872
FOC
RAD
AMPLIFIER
TTM
SL
SERVO
DRIVERS
CAR-MOTOR
LOADER CONTROL
TRAY-MOTOR

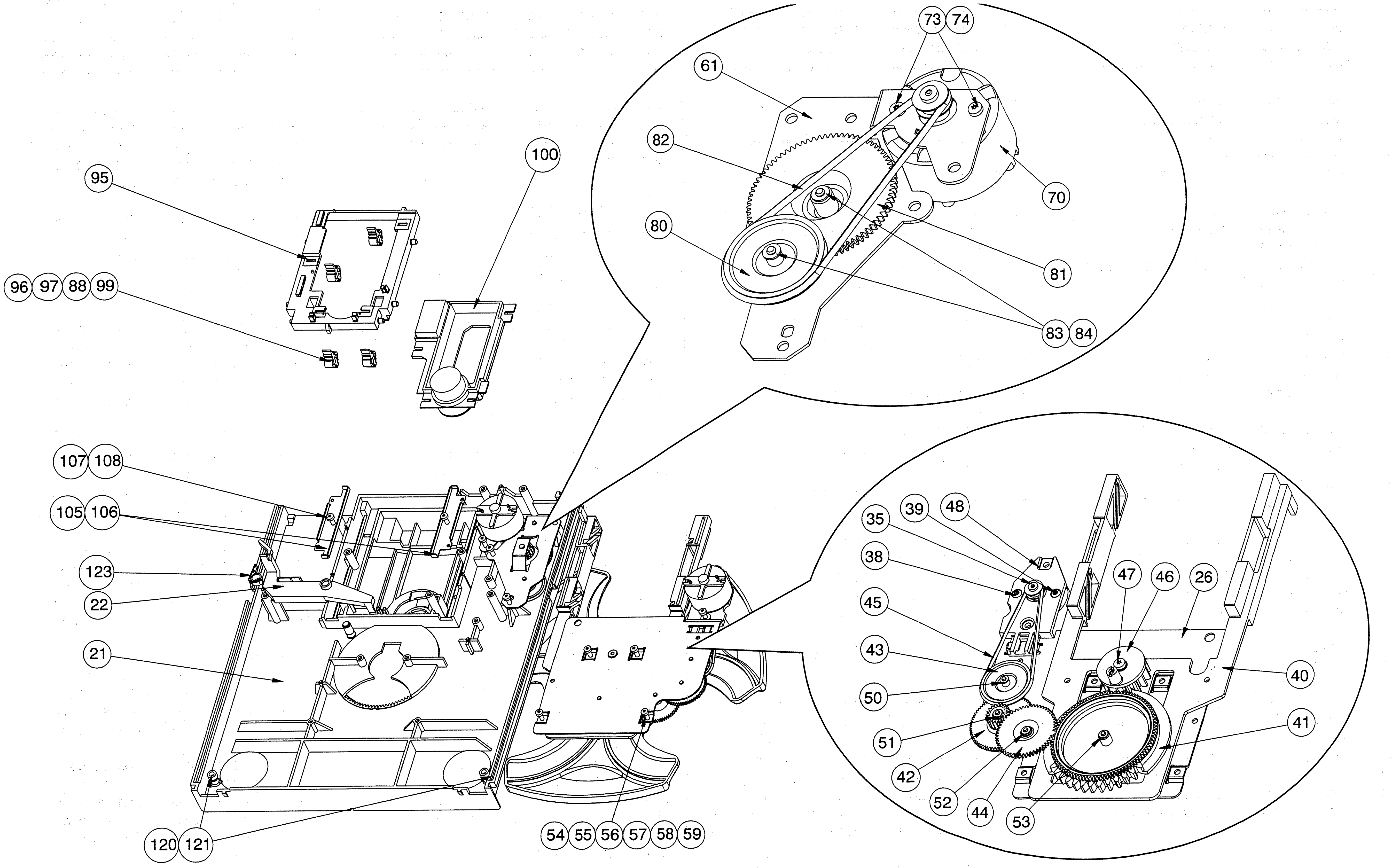
7800	B 2
7872	C 3

CDC EXPLODED VIEW I


125
115
116
117
118
140


2
10
7
4
9
6
8
5
3

CDC EXPLODED VIEW II


73
74
61
82
100
95
70
80
81
96
97
88
99
83
84
107
108
105
106
35
39
48
123
38
47
46
26
22
45
21
43
40
50
51
41
42
52
44
53
120
121
54
55
56
57
58
59

MECHANICAL PARTS

3	4822 463 11008	GUIDE LEFT
4	4822 463 11009	GUIDE RIGHT
21	4822 441 11615	DRAWER
22	4822 402 10088	TUMBLER
35	4822 361 10753	CARROUSEL MOTOR
38	4822 502 12548	SCREW M2.6 X 3.5
39	4822 502 12548	SCREW M2.6 X 3.5
40	4822 463 11011	IDE
41	4822 522 10509	CONTROL DISC
42	4822 522 10492	GEAR WHEEL
43	4822 528 10937	PULLEY
44	4822 522 10493	IDLER WHEEL
45	4822 358 10115	BELT
46	4822 466 10735	ECCENTRIC GEAR WHEEL
50	4822 532 12364	WASHER
51	4822 532 12364	WASHER
52	4822 532 12364	WASHER
53	4822 532 12364	WASHER
70	4822 361 10753	TRAY MOTOR
73	4822 502 12548	SCREW M 2.6 X 3.5
74	4822 502 12548	SCREW M 2.6 X 3.5
80	4822 528 10937	PULLEY
81	4822 522 10494	GEAR WHEEL
82	4822 358 10115	BELT
83	4822 532 12364	WASHER
84	4822 532 12364	WASHER
95	4822 404 10894	CDM SUPPORT
96	4822 325 50215	SUSPENSION
97	4822 325 50215	SUSPENSION
98	4822 325 50215	SUSPENSION
99	4822 325 50215	SUSPENSION
100	4822 691 30278	CDM-12.1 MECHANISM
115	4822 466 10736	CARROUSEL
117	4822 532 12365	BUSH
120	4822 532 51756	DAMPING GROMMET
121	4822 532 51756	DAMPING GROMMET
123	4822 402 10085	SWITCH BRACKET
125	4822 532 52386	CLAMPER
140	4822 466 10734	FLEX CABLE PROTECTION PLATE

MISCELLANEOUS

1880	4822 276 13503	OPEN/CLOSE SWITCH
1881	4822 276 13503	CDM POSITION SWITCH
1882	4822 276 13503	CARROUSEL SWITCH
8002	4822 320 11313	FLEXFOIL 15P
	4822 390 10136	LUBRICATING GREASE

CRYSTAL

1810	4822 242 73557	CRYSTAL 8.46 MHZ

CAPACITORS

2800	4822 126 10053	180pF 10%
2801	4822 122 10466	220pF 10% 50V
2802	4822 126 10053	180pF 10%
2803	4822 122 10466	220pF 10% 50V
2804	4822 126 12787	330pF 10% 50V
2805	4822 122 10466	220pF 10% 50V
2806	4822 122 10466	220pF 10% 50V
2807	4822 126 12878	1.5nF 10% 16V
2808	4822 122 10466	220pF 10% 50V
2809	4822 126 12882	100nF +80-20% 50V
2810	4822 122 10459	560pF 10% 50V
2811	4822 122 10466	220pF 10% 50V
2812	4822 122 33848	47pF 5% 50V
2813	4822 122 33848	47pF 5% 50V
2814	4822 122 33195	100pF 10% 50V
2815	4822 126 12573	18pF 5% 50V
2816	4822 124 23624	47µF 20% 16V
2817	4822 126 12787	330pF 10% 50V
2818	4822 124 23624	47µF 20% 16V
2819	4822 126 12787	330pF 10% 50V
2820	4822 126 10053	180pF 10%
2821	4822 126 11585	22nF +80-20% 25V
2822	4822 126 12339	2.2nF 10%
2823	4822 122 33848	47pF 5% 50V
2824	4822 126 11585	22nF +80-20% 25V
2825	4822 126 12882	100nF +80-20% 50V
2826	4822 124 23624	47µF 20% 16V
2827	4822 126 12882	100nF +80-20% 50V
2828	4822 126 12882	100nF +80-20% 50V
2829	4822 124 80865	10µF 20% 25V
2830	4822 126 12882	100nF +80-20% 50V
2831	4822 126 12882	100nF +80-20% 50V
2832	4822 124 23624	47µF 20% 16V
2835	4822 126 12882	100nF +80-20% 50V
2836	4822 124 23624	47µF 20% 16V

CAPACITORS

2837	4822 126 12882	100nF +80-20% 50V
2838	4822 126 12882	100nF +80-20% 50V
2839	4822 126 12882	100nF +80-20% 50V
2840	4822 126 12882	100nF +80-20% 50V
2841	4822 122 10574	1.2nF 10% 16V
2842	4822 121 51387	10nF 20% 16V
2843	4822 126 12882	100nF +80-20% 50V
2844	4822 122 10574	1.2nF 10% 16V
2845	4822 121 51387	10nF 20% 16V
2846	4822 126 11585	22nF +80-20% 25V
2847	4822 126 12882	100nF +80-20% 50V
2848	4822 124 23624	47µF 20% 16V
2850	4822 122 33197	1nF 10% 50V
2851	4822 124 41997	470µF 10V
2852	4822 126 12882	100nF +80-20% 50V
2855	4822 126 12882	100nF +80-20% 50V
2856	4822 126 12882	100nF +80-20% 50V
2860	4822 124 41579	10µF 20% 50V
2861	4822 124 41579	10µF 20% 50V
2862	4822 126 12339	2.2nF 10%
2863	4822 126 12339	2.2nF 10%
2872	4822 126 12882	100nF +80-20% 50V
2873	4822 126 12882	100nF +80-20% 50V
2874	4822 126 11585	22nF +80-20% 25V
2875	4822 126 11585	22nF +80-20% 25V
2876	4822 124 23794	470µF 20% 16V
2881	4822 126 12882	100nF +80-20% 50V

RESISTORS

3800	4822 116 52239	120k 5% 0.5W
3801	4822 116 83864	10k 5% 0.5W
3802	4822 116 52239	120k 5% 0.5W
3803	4822 116 83864	10k 5% 0.5W
3804	4822 116 52291	56k 5% 0.5W
3805	4822 116 83864	10k 5% 0.5W
3806	4822 116 83864	10k 5% 0.5W
3807	4822 116 83864	10k 5% 0.5W
3808	4822 116 83864	10k 5% 0.5W
3810	4822 050 11002	1k 1% 0.4W
3811	4822 116 52267	30k 5% 0.5W
3812	4822 116 52272	330k 5% 0.5W
3813	4822 116 52284	47k 5% 0.5W
3814	4822 116 83882	39k 5% 0.5W
3815	4822 050 11002	1k 1% 0.4W

RESISTORS

3816	4822 116 52175	100Ω 5% 0.5W
3817	4822 050 11002	1k 1% 0.4W
3818	4822 116 52175	100Ω 5% 0.5W
3819	4822 116 52222	390Ω 5% 0.5W
3820	4822 116 52223	430Ω 5% 0.5W
3821	4822 116 52249	1k8 5% 0.5W
3822	4822 116 52223	430Ω 5% 0.5W
3823	4822 116 52249	1k8 5% 0.5W
3824	4822 116 52269	3k3 5% 0.5W
3825	4822 116 52256	2k2 5% 0.5W
3826	4822 116 52257	22k 5% 0.5W
3827	4822 116 52278	390k 5% 0.5W
3828	4822 116 52257	22k 5% 0.5W
3829	4822 116 52175	100Ω 5% 0.5W
3830	4822 116 52235	1M 5% 0.5W
3831	4822 116 52257	22k 5% 0.5W
3832	4822 116 52215	220Ω 5% 0.5W
3833	4822 116 83864	10k 5% 0.5W
3834	4822 116 83864	10k 5% 0.5W
3835	4822 116 52256	2k2 5% 0.5W
3836	4822 050 11002	1k 1% 0.4W
3837	4822 050 11002	1k 1% 0.4W
3838	4822 050 11002	1k 1% 0.4W
3839	4822 116 52245	150k 5% 0.5W
3840	4822 116 52245	150k 5% 0.5W
3841	4822 116 52289	5k6 5% 0.5W
3842	4822 116 83864	10k 5% 0.5W
3843	4822 116 52303	8k2 5% 0.5W
3844	4822 116 52224	470Ω 5% 0.5W
3845	4822 116 83864	10k 5% 0.5W
3846	4822 116 52303	8k2 5% 0.5W
3847	4822 116 52224	470Ω 5% 0.5W
3848	4822 116 52303	8k2 5% 0.5W
3849	4822 116 52303	8k2 5% 0.5W
3850	4822 116 52224	470Ω 5% 0.5W
3851	4822 052 10338	3Ω3 5% 0.33W
3852	4822 052 10338	3Ω3 5% 0.33W
3853	4822 052 10338	3Ω3 5% 0.33W
3858	4822 116 52257	22k 5% 0.5W
3859	4822 116 52257	22k 5% 0.5W
3860	4822 116 52224	470Ω 5% 0.5W
3861	4822 116 52224	470Ω 5% 0.5W
3869	4822 116 52175	100Ω 5% 0.5W
3870	4822 116 52226	560Ω 5% 0.5W
3871	4822 116 83864	10k 5% 0.5W

ELECTRICAL PARTLIST CDC3 INTERFACE BOARD

RESISTORS

3872	4822 116 83864	10k 5% 0.5W
3873	4822 116 52224	470Ω 5% 0.5W
3874	4822 116 83864	10k 5% 0.5W
3875	4822 116 83864	10k 5% 0.5W
3876	4822 116 83874	220k 5% 0.5W
3877	4822 116 83864	10k 5% 0.5W
3878	4822 116 83864	10k 5% 0.5W
3879	4822 116 83864	10k 5% 0.5W
3880	4822 116 52219	330Ω 5% 0.5W
3881	4822 116 83864	10k 5% 0.5W
3882	4822 116 52284	47k 5% 0.5W
3883	4822 116 52234	100k 5% 0.5W
3884	4822 116 52276	3k9 5% 0.5W
3885	4822 116 52234	100k 5% 0.5W
3886	4822 116 52284	47k 5% 0.5W
3887	4822 052 10221	220Ω 5% 0.33W
3888	4822 116 83864	10k 5% 0.5W
3894	4822 052 10338	3Ω3 5% 0.33W
3895	4822 052 10338	3Ω3 5% 0.33W
3896	4822 116 83864	10k 5% 0.5W
3897	4822 116 52175	100Ω 5% 0.5W

DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-C5V1

INTERGRATED CIRCUITS

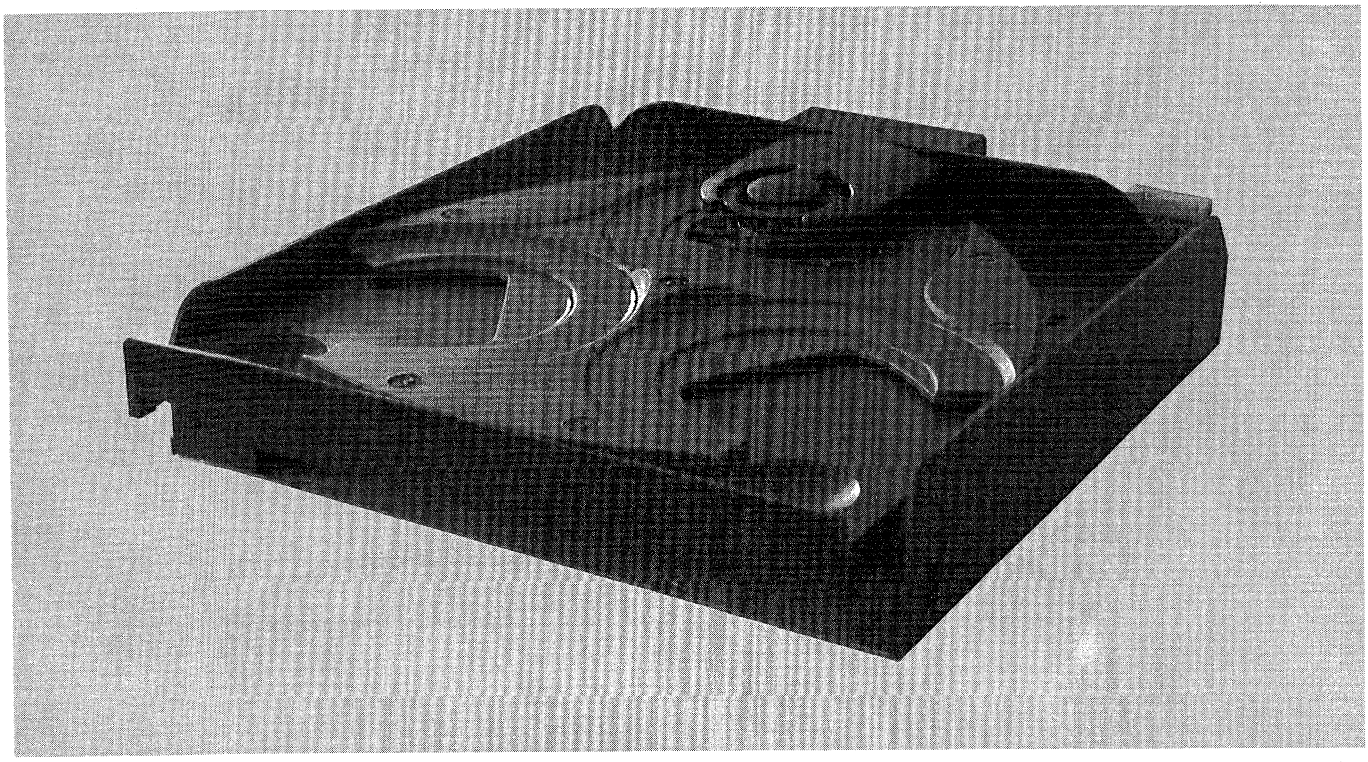
7800	4822 209 12752	SAA7378GP/M1
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7851	4822 209 32421	TDA1311A/N2
7871	4822 209 32852	TDA7073A/N2
7872	5322 209 11306	HEF4094BT

TRANSISTORS

7801	4822 130 40902	BF240
7802	4822 130 40937	BC548B
7803	4822 130 44197	BC558B
7804	4822 130 40937	BC548B
7805	4822 130 40937	BC548B

TRANSISTORS

7808	4822 130 40937	BC548B
7809	4822 130 41715	BC328-40
7874	4822 130 40937	BC548B



3CDC Module

(3 Disc Carrousel Changer)

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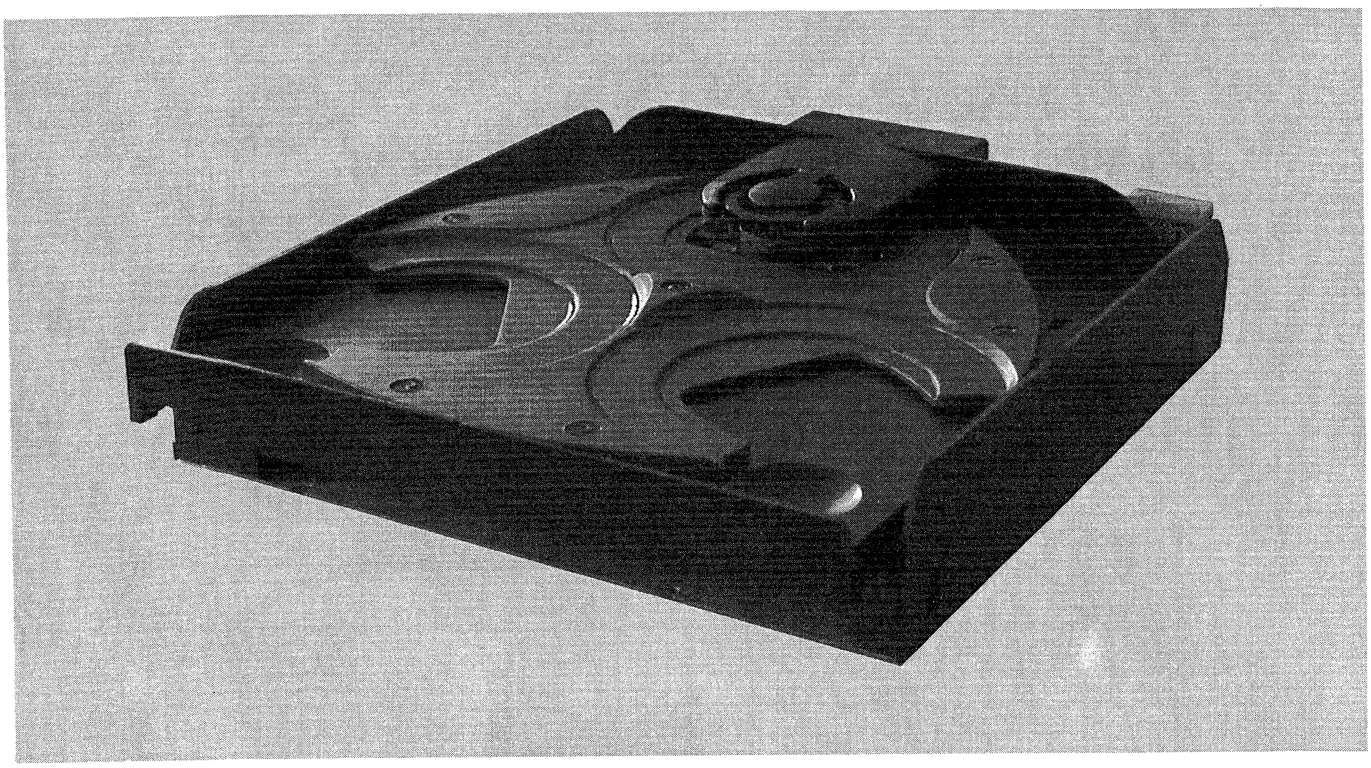

3CDC Module

(3 Disc Carrousel Changer)

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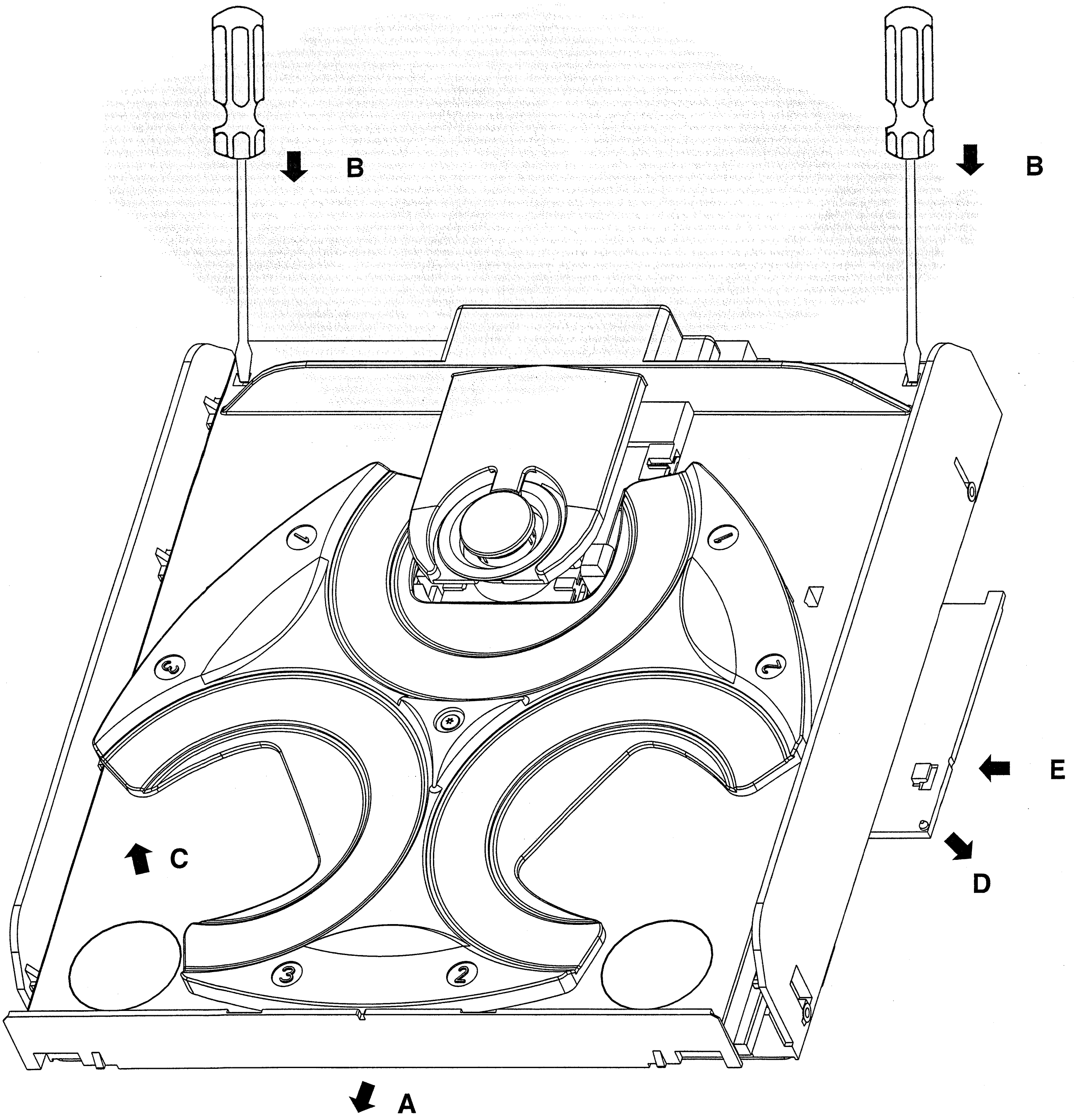
Demounting Hints



Demounting of Drawer

→ **A** Pull drawer outwards
→ **B** Unlock drawer with screwdriver
→ **C** Lift drawer to demount from chassis

Demounting of Flex Plate

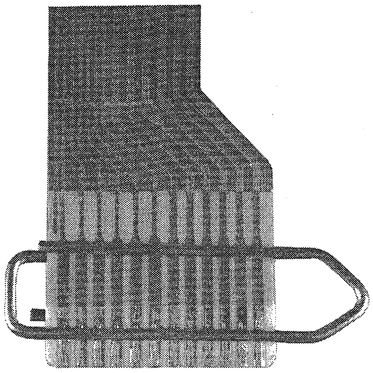
→ **D** Lift plate to unlock pin from bottom plate
→ **E** Move plate inwards to demount from bottom plate

Servicing Hints

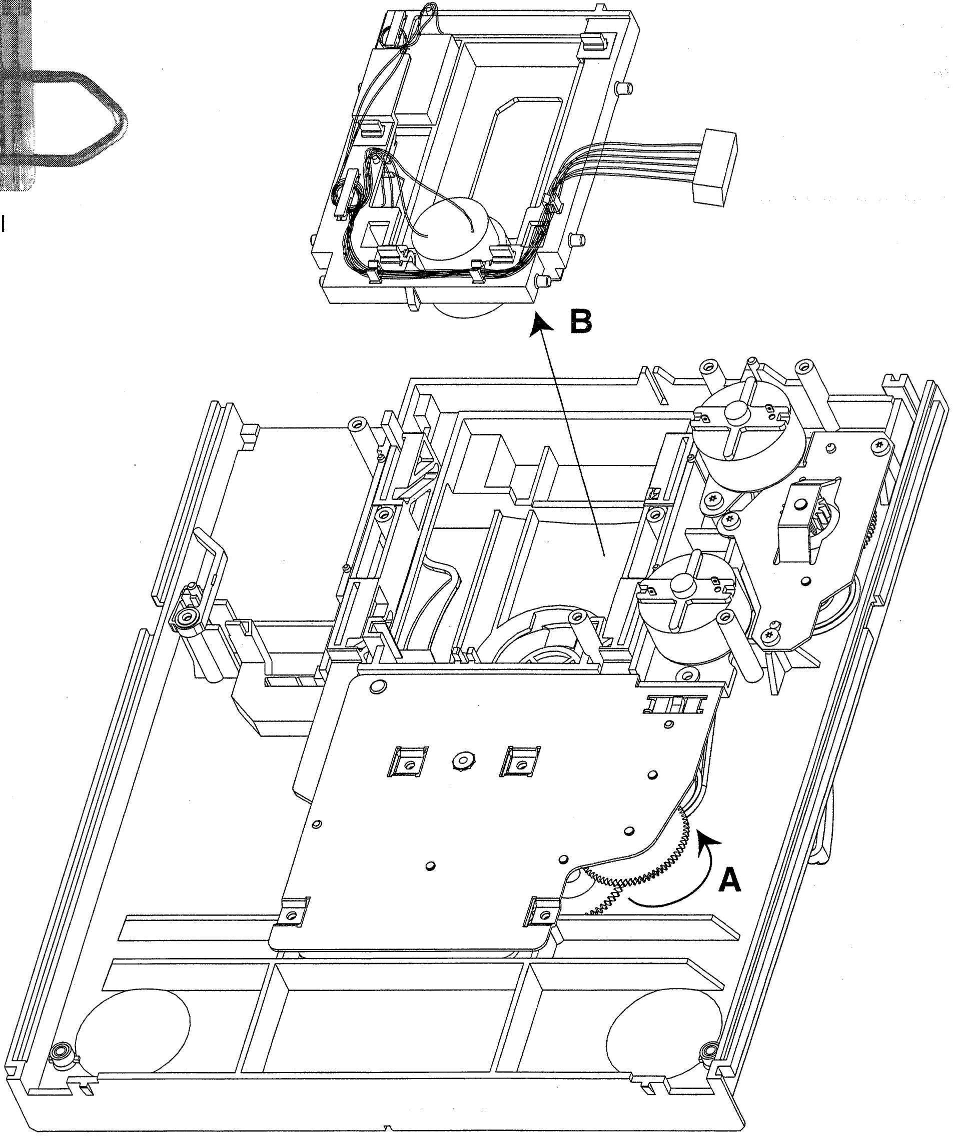
Replacement of CD Drive

See also exploded view of changer mechanism.

1. Demount flex plate (pos 140).
2. Demount printed circuit board: remove 6 screws and desolder lips of tray motor and carrousel motor.
3. Disconnect flexfoil and JST connector of CD drive from Printed circuit board. Shortcircuit the flexfoil with a paperclip to protect the laser against ESD.
4. Remove 2 screws (pos 107,108) and demount CD drive lockings (pos 105,106).
5. Turn gearwheel (pos 42) of disc change mechanism by finger to move CD drive support in upper position as shown in picture below Ⓐ.
6. Demount CD drive support (pos 95) Ⓑ.
7. Replace CD drive (pos 100). The wire tree of JST connector has to be desoldered and resoldered on the new CD drive again.



CD drive flex foil

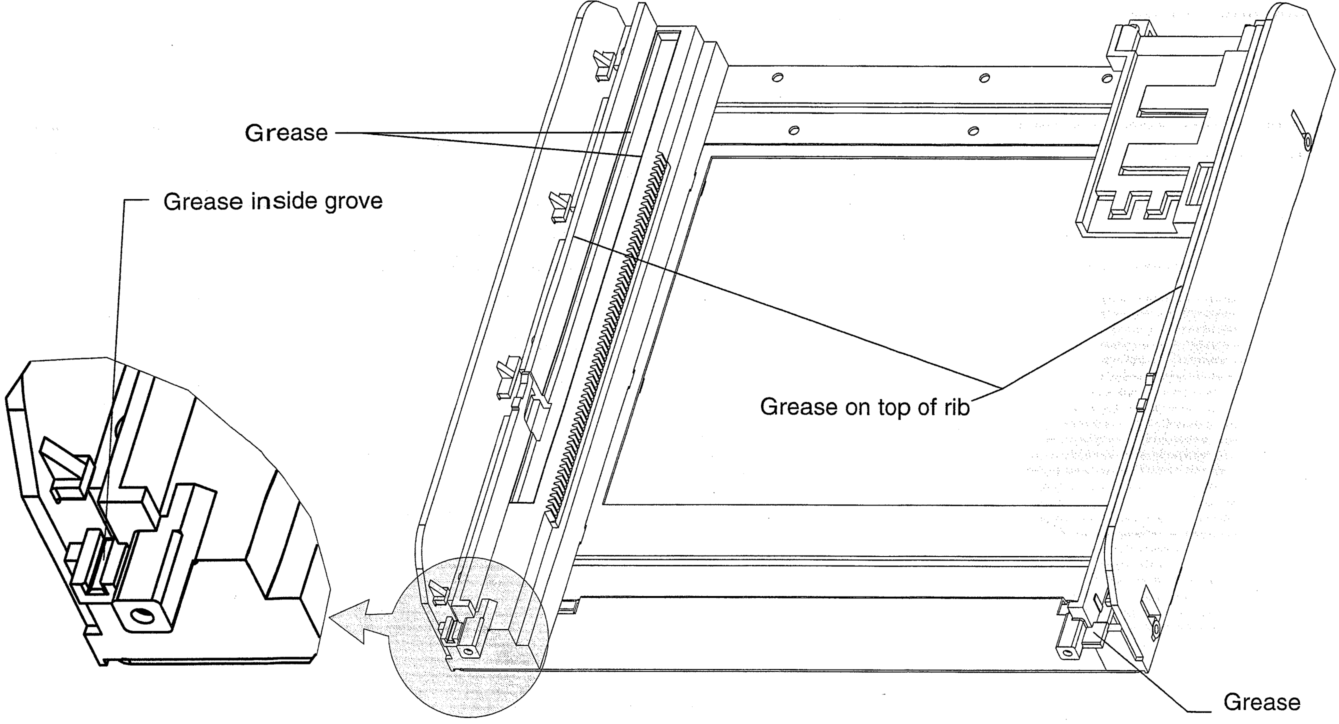


Mounting of Carrousel

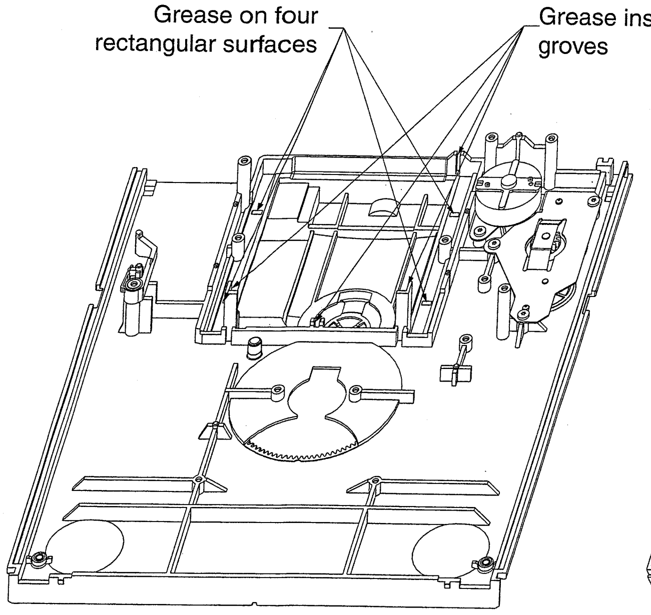
1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carrousel (pos 115) so that disc is positioned right on turntable. Carrousel position number doesn´t matter.

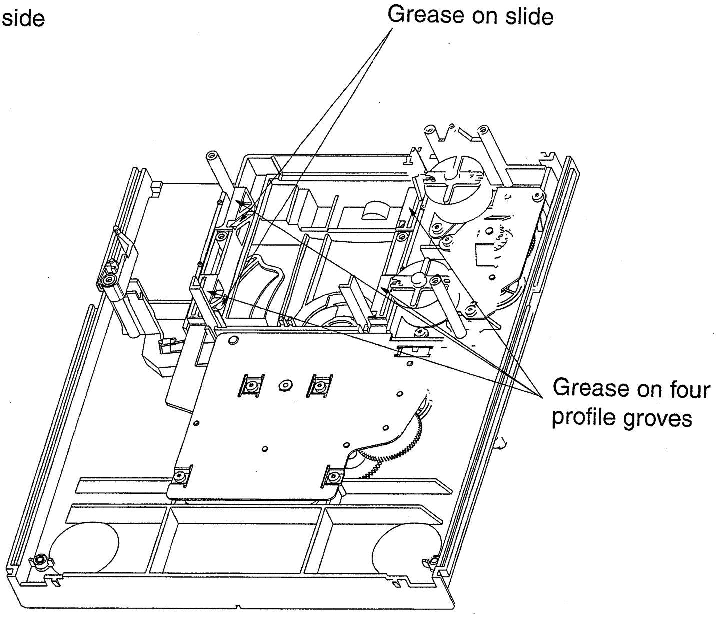
Lubrication Instructions

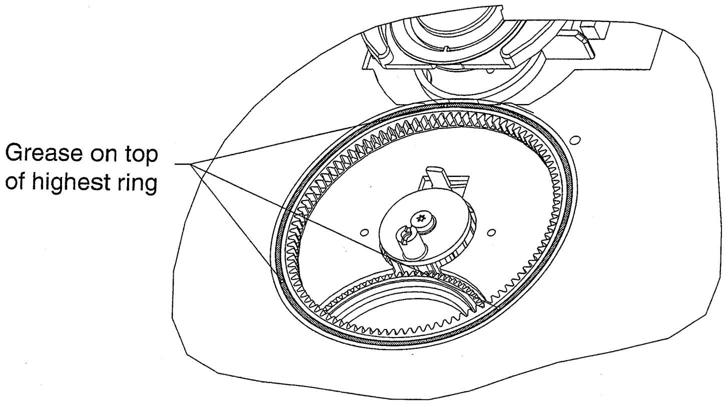
CHASSIS


Grease
Grease inside grove
Grease on top of rib
Grease

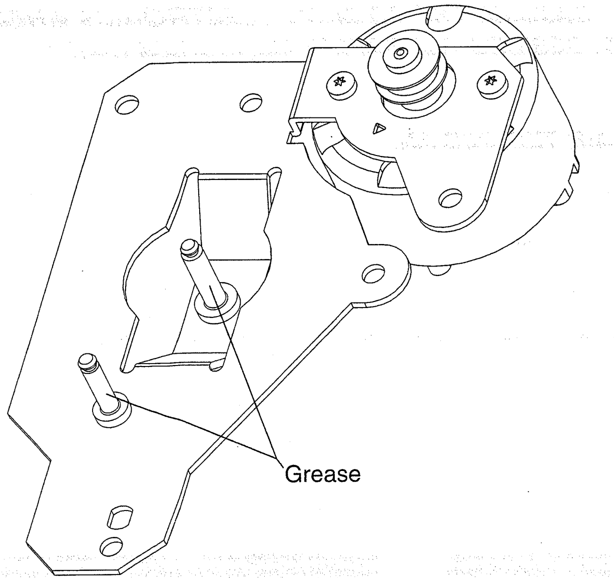
DRAWER


Grease on four rectangular surfaces
Grease inside groves

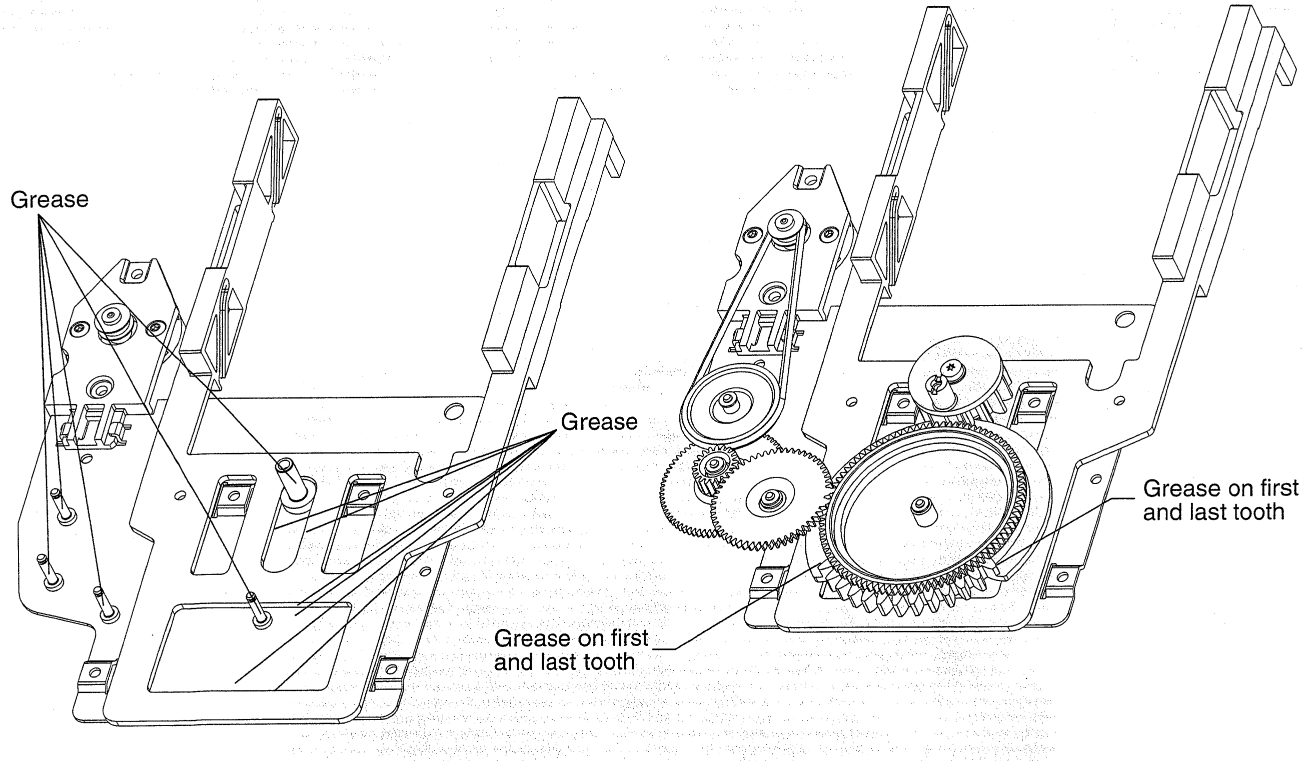

Grease on slide
Grease on four profile groves


Grease on top of highest ring

DRAWER MECHANISM



DISC CHANGE MECHANISM


Grease
Grease
Grease on first and last tooth
Grease on first and last tooth

Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

WARNING

CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
- *SWITCH OFF POWER SUPPLY*
- *ESD PROTECTION*

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The following steps have to be done when replacing the CDM mechanism:
1. Disconnect old CD drive flexfoil from printed board
2. Connect paperclip to CD drive flexfoil to short-circuit flexfoil (fig.1)
3. Short-circuit printed board with **brass-sheet (4822 321 11197)** plugged into the flexfoil connector (fig.2)
4. Remove old CD drive mechanism
5. Position new CD mechanism in its studs
6. Remove short-circuit from printed board connector
7. Remove short-circuit from flexfoil of new CD drive
8. Connect new flexfoil to print connector (fig.3)

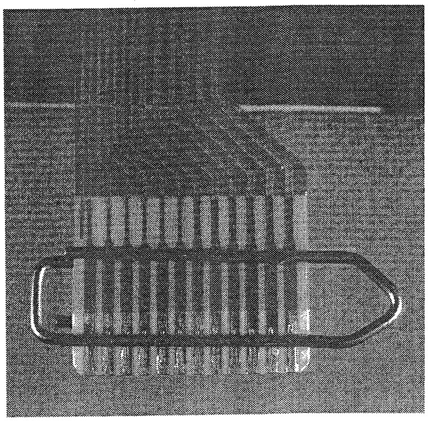


fig.1

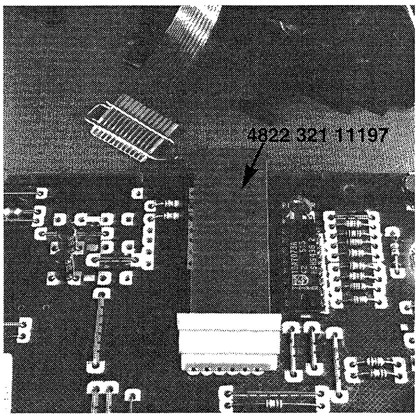


fig.2

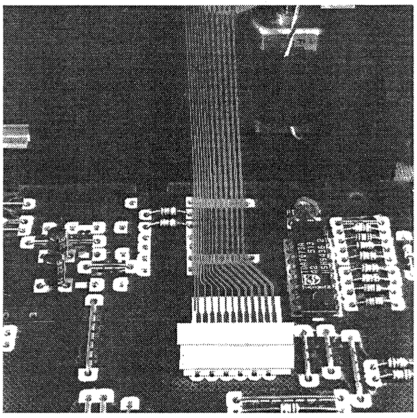
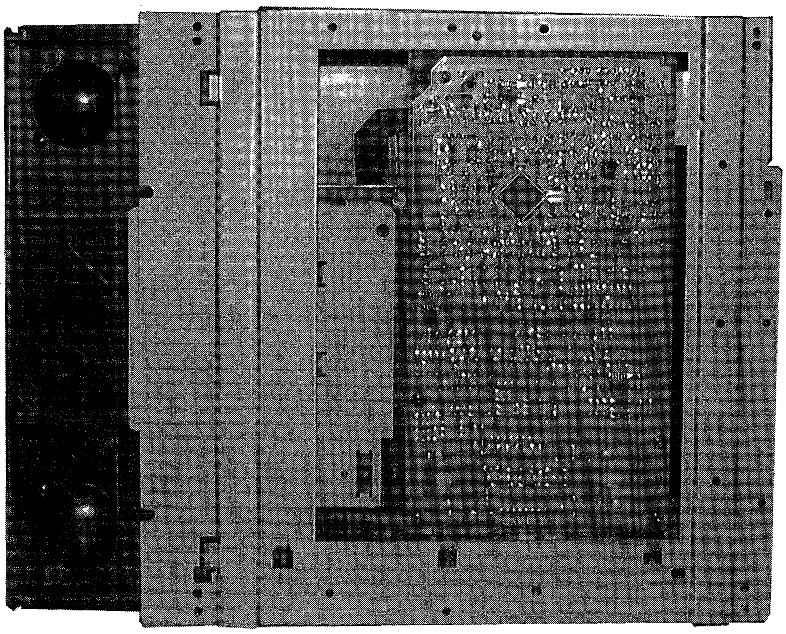
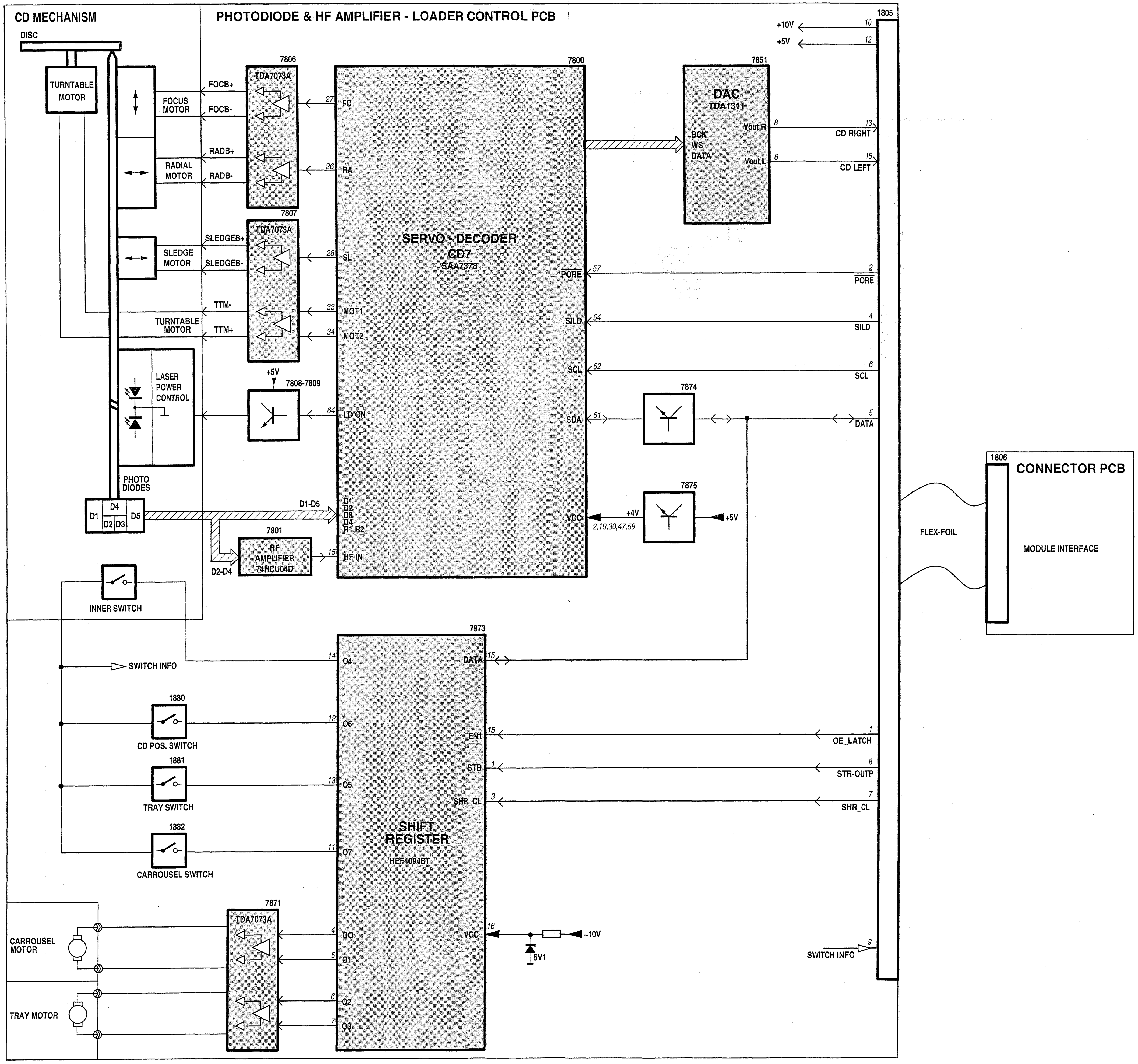


fig.3

Service Position

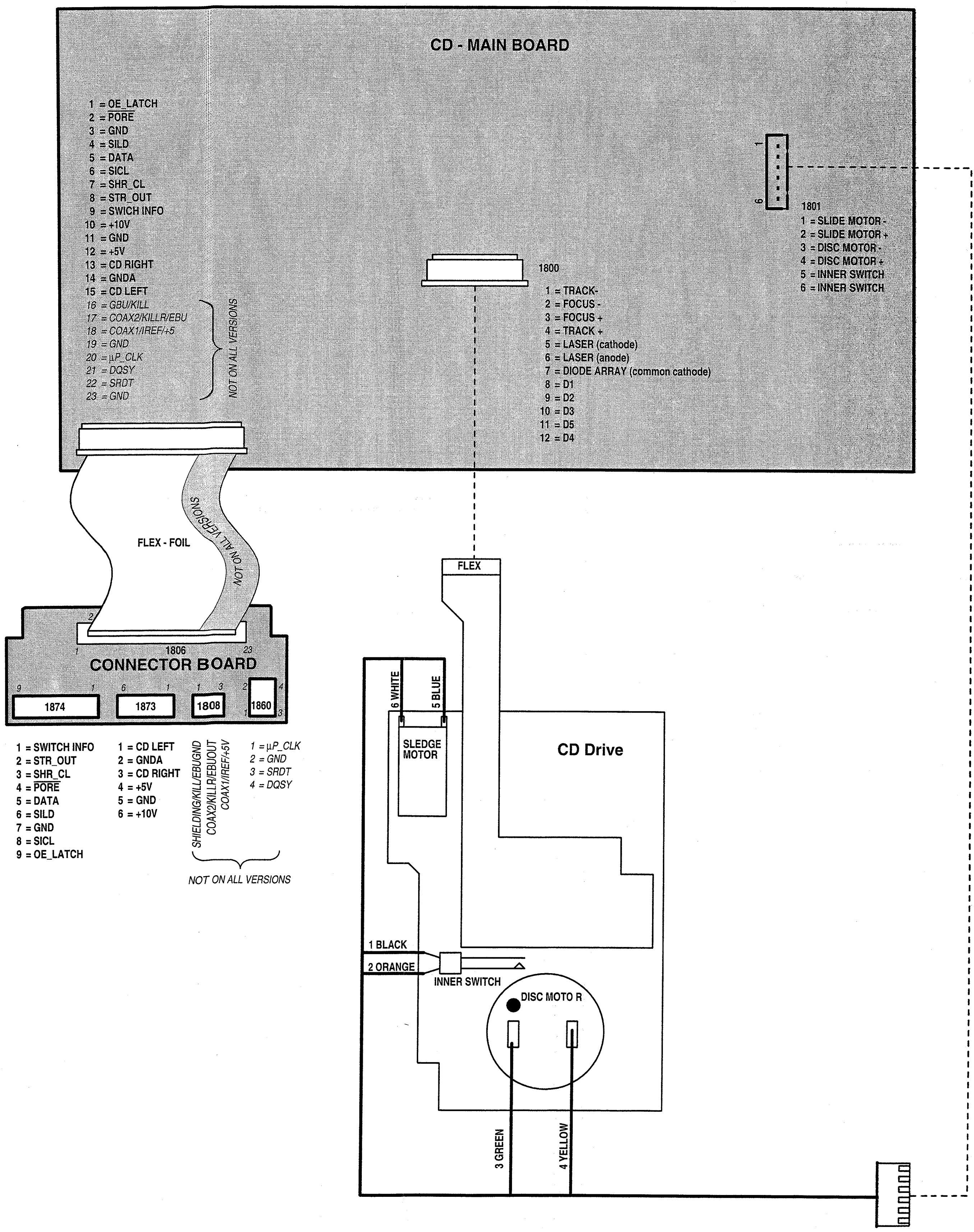


Blockdiagram


CD MECHANISM
PHOTODIODE & HF AMPLIFIER - LOADER CONTROL PCB
DISC
TURNTABLE MOTOR
FOCUS MOTOR
FOCB+
FOCB-
RADIAL MOTOR
RADB+
RADB-
SLEDGE MOTOR
SLEDGEB+
SLEDGEB-
TURNTABLE MOTOR
TTM-
TTM+
LASER POWER CONTROL
PHOTO DIODES
D1
D2
D3
D4
D5
D1-D5
D2-D4
7806
TDA7073A
7807
TDA7073A
7808-7809
+5V
7801
HF AMPLIFIER 74HCU04D
7800
SERVO - DECODER
CD7
SAA7378
27 FO
26 RA
28 SL
33 MOT1
34 MOT2
64 LD ON
D1 D2 D3 D4 R1,R2
15 HF IN
PORE 57
SILD 54
SCL 52
SDA 51
VCC
+4V
2,19,30,47,59
7851
DAC
TDA1311
BCK
WS
DATA
Vout R 8
Vout L 6
7874
7875
+5V
1805
+10V 10
+5V 12
13 CD RIGHT
15 CD LEFT
2 PORE
4 SILD
6 SCL
5 DATA
1 OE_LATCH
8 STR-OUTP
7 SHR_CL
9 SWITCH INFO
1806
CONNECTOR PCB
MODULE INTERFACE
FLEX-FOIL
INNER SWITCH
SWITCH INFO
1880
CD POS. SWITCH
1881
TRAY SWITCH
1882
CARROUSEL SWITCH
7873
SHIFT REGISTER
HEF4094BT
14 O4
12 O6
13 O5
11 O7
DATA 15
EN1 15
STB 1
SHR_CL 3
VCC 16
+10V
5V1
7871
TDA7073A
CARROUSEL MOTOR
TRAY MOTOR
4 OO
5 O1
6 O2
7 O3

CS 53 006

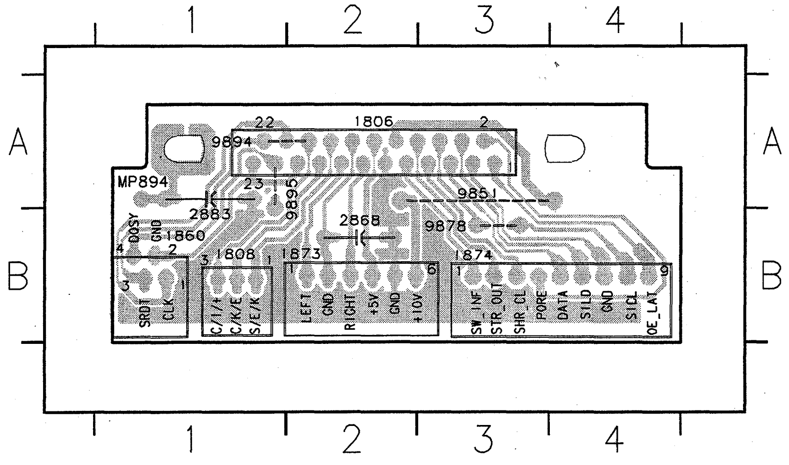
Wiring diagram


CD - MAIN BOARD
1 = OE_LATCH
2 = PORE
3 = GND
4 = SILD
5 = DATA
6 = SICL
7 = SHR_CL
8 = STR_OUT
9 = SWICH INFO
10 = +10V
11 = GND
12 = +5V
13 = CD RIGHT
14 = GNDA
15 = CD LEFT
16 = GBU/KILL
17 = COAX2/KILLR/EBU
18 = COAX1/IREF/+5
19 = GND
20 = µP_CLK
21 = DQSY
22 = SRDT
23 = GND
NOT ON ALL VERSIONS
1800
1 = TRACK-
2 = FOCUS -
3 = FOCUS +
4 = TRACK +
5 = LASER (cathode)
6 = LASER (anode)
7 = DIODE ARRAY (common cathode)
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
1
6
1801
1 = SLIDE MOTOR -
2 = SLIDE MOTOR +
3 = DISC MOTOR -
4 = DISC MOTOR +
5 = INNER SWITCH
6 = INNER SWITCH
FLEX - FOIL
NOT ON ALL VERSIONS
2
1
1806
23
CONNECTOR BOARD
9
1
1874
6
1
1873
1
3
1808
2
4
1
3
1860
1 = SWITCH INFO
2 = STR_OUT
3 = SHR_CL
4 = PORE
5 = DATA
6 = SILD
7 = GND
8 = SICL
9 = OE_LATCH
1 = CD LEFT
2 = GNDA
3 = CD RIGHT
4 = +5V
5 = GND
6 = +10V
SHIELDING/KILL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
1 = µP_CLK
2 = GND
3 = SRDT
4 = DQSY
NOT ON ALL VERSIONS
FLEX
6 WHITE
5 BLUE
SLEDGE MOTOR
CD Drive
1 BLACK
2 ORANGE
INNER SWITCH
DISC MOTO R
3 GREEN
4 YELLOW

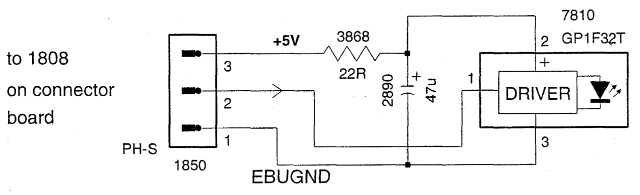
Remarks

Connector Board Copperside view

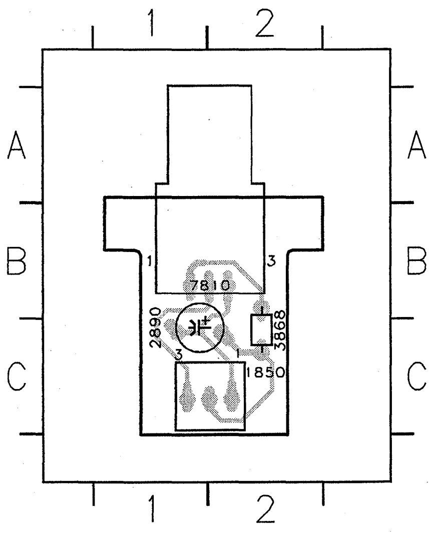
1806	A2
1808	B1
1860	B1
1873	B2
1874	B3
2868	B2
2883	B1
9851	A3
9878	B3
9894	A1
9895	A2
MP894	A1


1
2
3
4
A
B
22
1806
2
9894
MP894
23
9895
2883
9851
2868
9878
DQSY
GND
1860
2
1808
1873
1874
SRDT
CLK
C/I/+
C/K/E
S/E/K
LEFT
GND
RIGHT
+5V
GND
+10V
SW_INF
STR_OUT
SHR_CL
PORE
DATA
SILD
GND
SICL
OE_LAT

Circuit Diagram Optical out


to 1808
on connector
board
PH-S
1850
3
2
1
+5V
3868
22R
2890
47u
EBUGND
7810
GP1F32T
2
1
3
DRIVER

Component Layout Optical out

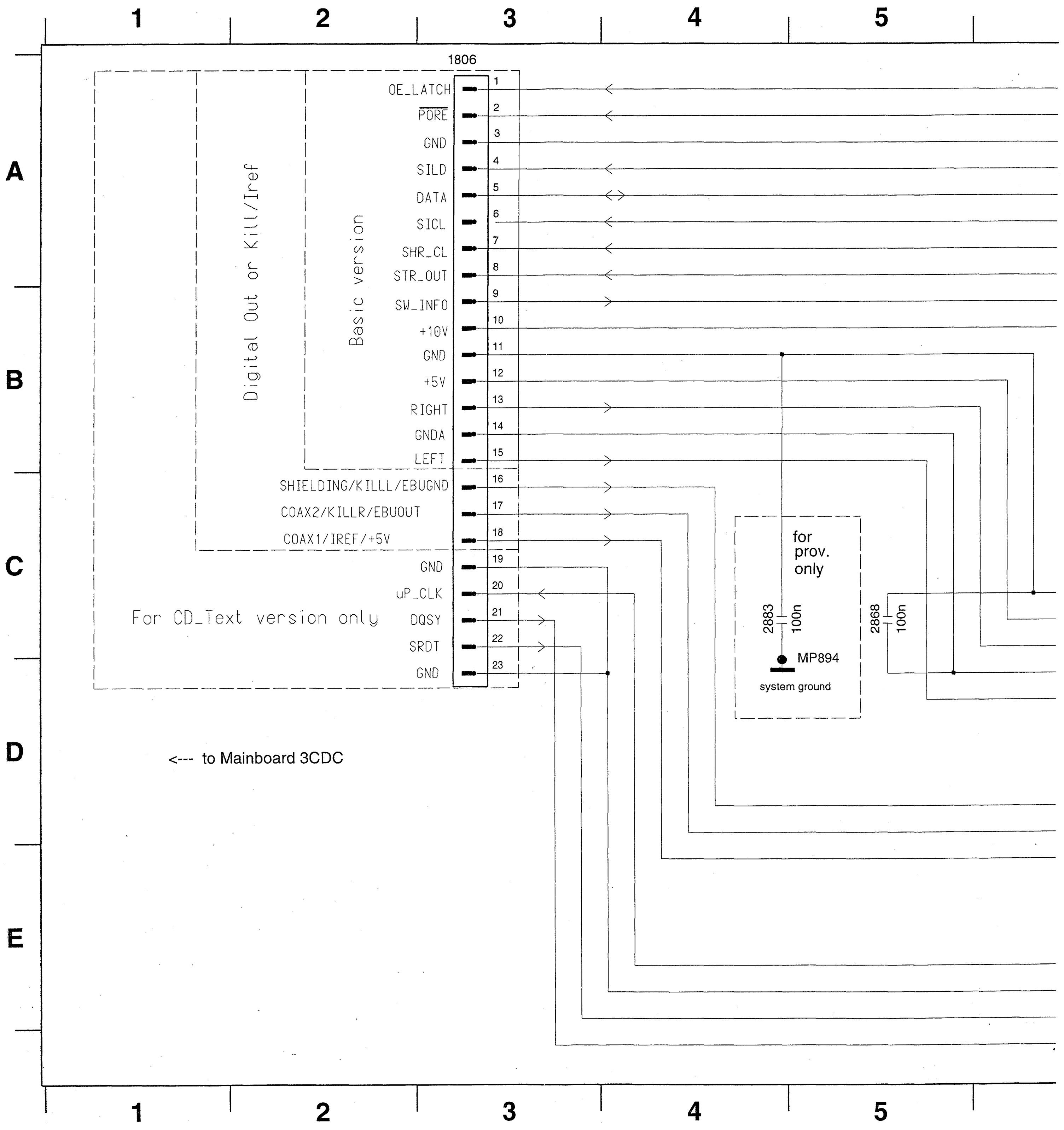

1
2
A
B
C
3
7810
2890
3868
1850
1
3

1850	C2
2890	C1
3868	C2
7810	B1

NOT ON ALL VERSIONS

Circuit diagram Connector Board

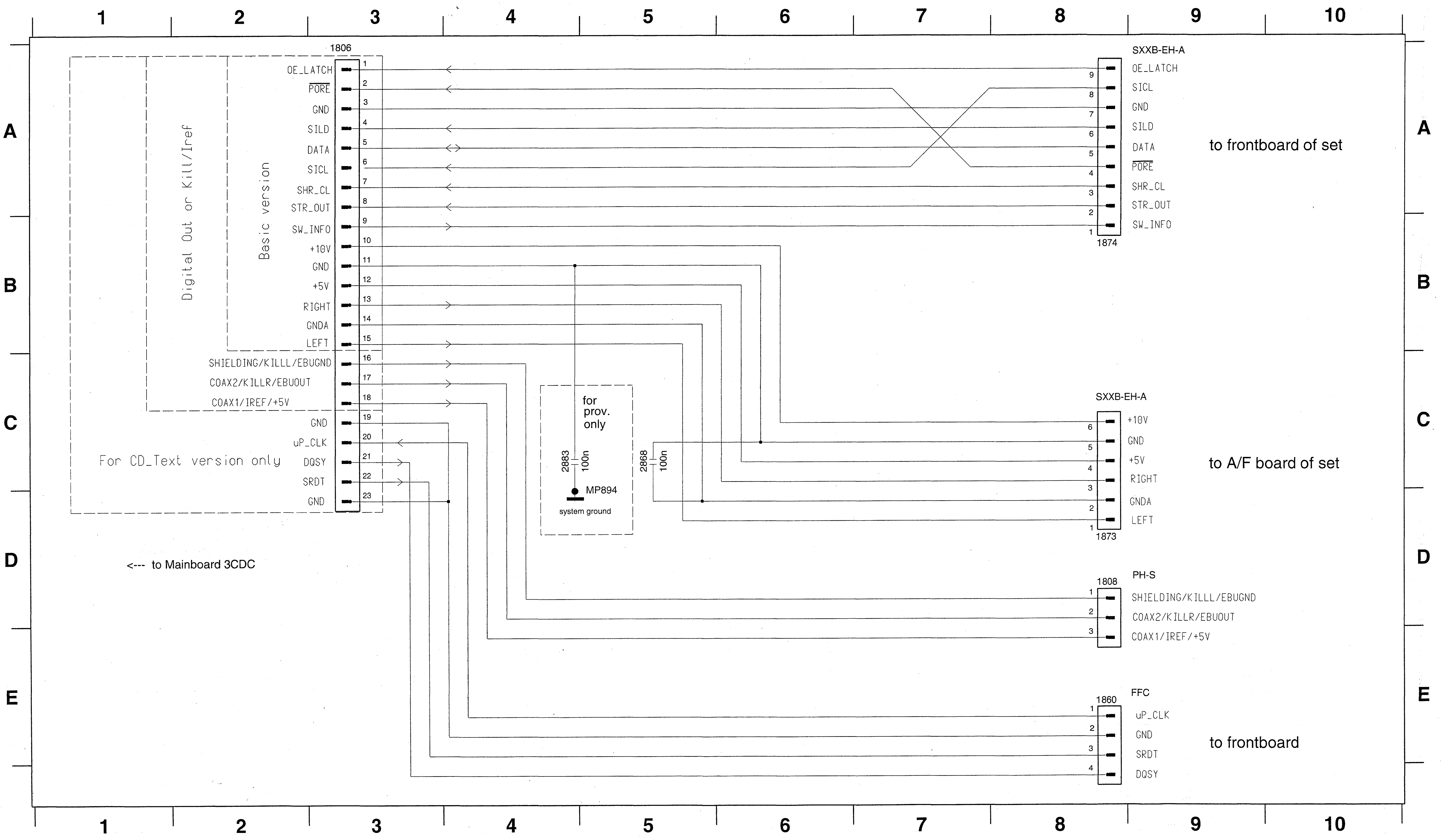
1806	A3
1808	D8
1860	E8
1873	D8
1874	B8
2868	C5
2883	C4

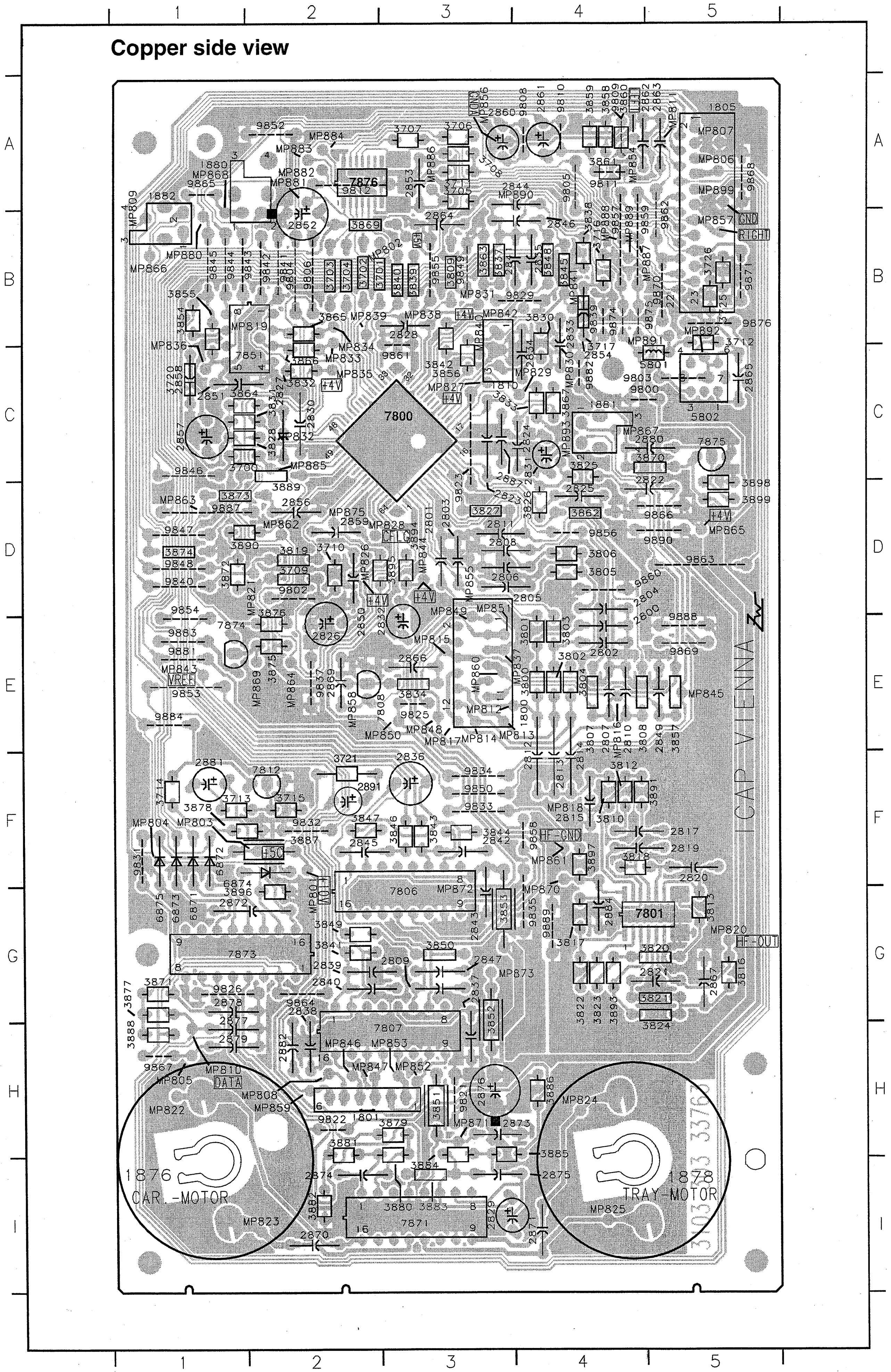

1
2
3
4
5
A
B
C
D
E
1806
OE_LATCH
PORE
GND
SILD
DATA
SICL
SHR_CL
STR_OUT
SW_INFO
+10V
GND
+5V
RIGHT
GNDA
LEFT
SHIELDING/KILLL/EBUGND
COAX2/KILLR/EBUOUT
COAX1/IREF/+5V
GND
uP_CLK
DQSY
SRDT
GND
Basic version
Digital Out or Kill/Iref
For CD_Text version only
for
prov.
only
2883
100n
2868
100n
MP894
system ground
<--- to Mainboard 3CDC

Circuit diagram Connector Board

1806	A3	1860	E8	1874	B8	2883	C4
1808	D8	1873	D8	2868	C5		

1850	C2
2890	C1
3868	C2
7810	B1


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
1806
Digital Out or Kill/Iref
Basic version
For CD_Text version only
1 OE_LATCH
2 PORE
3 GND
4 SILD
5 DATA
6 SICL
7 SHR_CL
8 STR_OUT
9 SW_INFO
10 +10V
11 GND
12 +5V
13 RIGHT
14 GNDA
15 LEFT
16 SHIELDING/KILLL/EBUGND
17 COAX2/KILLR/EBUOUT
18 COAX1/IREF/+5V
19 GND
20 uP_CLK
21 DQSY
22 SRDT
23 GND
<--- to Mainboard 3CDC
for prov. only
2883
100n
MP894
system ground
2868
100n
SXXB-EH-A
9 OE_LATCH
8 SICL
7 GND
6 SILD
5 DATA
4 PORE
3 SHR_CL
2 STR_OUT
1 SW_INFO
1874
to frontboard of set
SXXB-EH-A
6 +10V
5 GND
4 +5V
3 RIGHT
2 GNDA
1 LEFT
1873
to A/F board of set
PH-S
1808
1 SHIELDING/KILLL/EBUGND
2 COAX2/KILLR/EBUOUT
3 COAX1/IREF/+5V
FFC
1860
1 uP_CLK
2 GND
3 SRDT
4 DQSY
to frontboard



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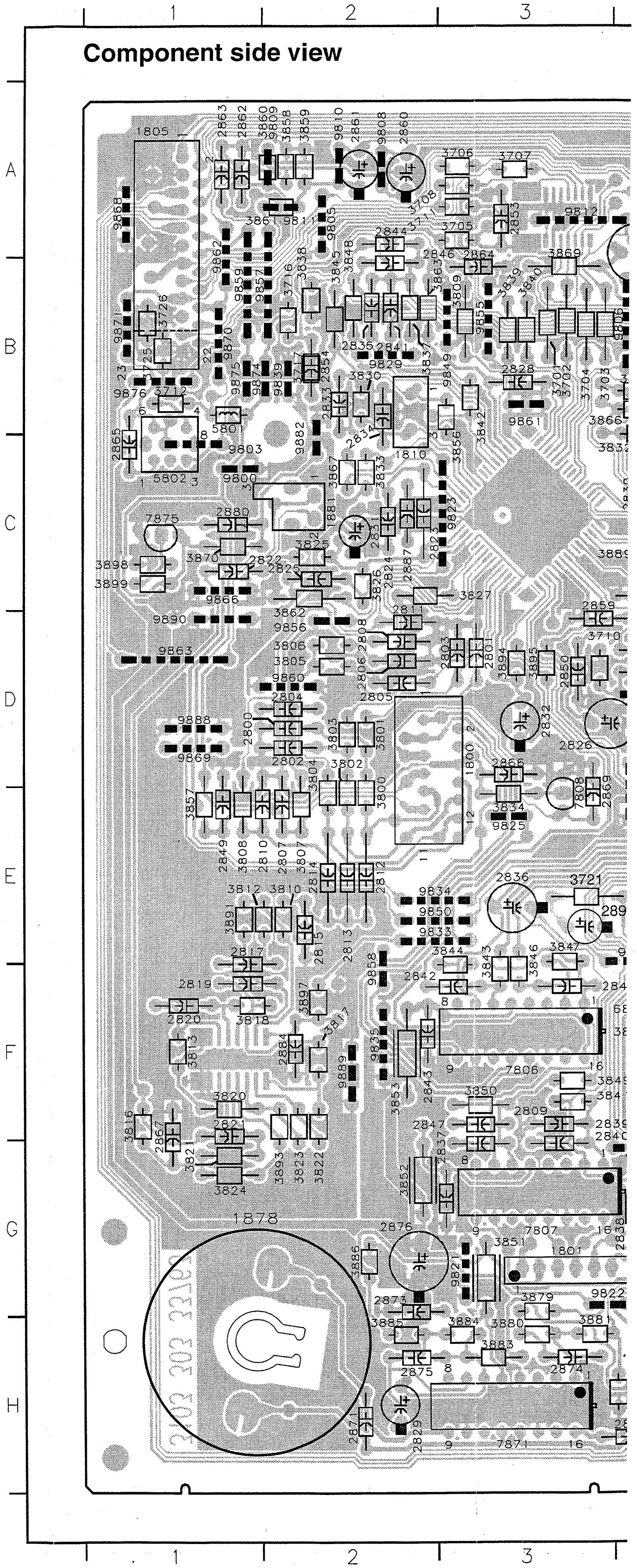
1801	H2	2870	I2	3843	F3	9803	C5
1805	B5	2871	I4	3844	F3	9804	B2
1810	C3	2872	G2	3845	B4	9805	A4
1876	I1	2873	H3	3846	F3	9806	B2
1878	I4	2874	I2	3847	F2	9808	A4
1880	B2	2875	I3	3848	B4	9809	A4
1881	C4	2876	H3	3849	G2	9810	A4
1882	B1	2877	G1	3850	G3	9811	A4
2800	D4	2878	G1	3851	H3	9812	A2
2801	D3	2879	H1	3852	G3	9821	H3
2802	E4	2880	C5	3853	G3	9822	H2
2803	D3	2881	F1	3854	B1	9823	C3
2804	D4	2882	H2	3855	B1	9825	E3
2805	D3	2884	G4	3856	C3	9826	G1
2806	D3	2887	C3	3857	E5	9829	B4
2807	E4	3700	C1	3858	A4	9831	F1
2808	D3	3701	B3	3859	A4	9832	F2
2809	G3	3702	B2	3860	A4	9833	F3
2810	E4	3703	B2	3861	A4	9834	F3
2811	D3	3704	B2	3862	D4	9835	G4
2812	F4	3705	A3	3863	B3	9837	E2
2813	F4	3706	A3	3864	C1	9839	B4
2814	F4	3707	A3	3865	B2	9840	D1
2815	F4	3708	A3	3866	C2	9841	B2
2817	F4	3709	D2	3867	C4	9842	B2
2819	F4	3710	D2	3869	B2	9843	B2
2820	F5	3711	A3	3870	C5	9844	B1
2821	G5	3712	B5	3871	G1	9845	B1
2822	D5	3713	F1	3872	D1	9846	C1
2823	C3	3714	F1	3873	D1	9847	D1
2824	C4	3715	F2	3874	D1	9848	D1
2825	D4	3716	B4	3875	E2	9849	B3
2826	D2	3717	B4	3876	E2	9850	F3
2827	C2	3720	C1	3877	G1	9852	A2
2828	B3	3725	B5	3878	F2	9853	E1
2829	I3	3726	B5	3879	H3	9854	D1
2830	C2	3800	E4	3880	H3	9855	B3
2831	C4	3801	E4	3881	H2	9856	D4
2832	E3	3802	E4	3882	I2	9857	B4
2833	B4	3803	E4	3883	I3	9858	F4
2834	C3	3804	E4	3884	H3	9859	B4
2835	B4	3805	D4	3885	H3	9860	D4
2836	F3	3806	D4	3886	H4	9861	B3
2837	H3	3807	E4	3887	F2	9862	B5
2838	H2	3808	E4	3888	H1	9863	D5
2839	G2	3809	B3	3889	C2	9864	G2
2840	G2	3810	F4	3890	D1	9865	A1
2841	B3	3812	F4	3891	F4	9866	D5
2842	F3	3813	G5	3893	G4	9867	H1
2843	G3	3816	G5	3894	D3	9868	A5
2844	B4	3817	G4	3895	D3	9869	E5
2845	F2	3818	F4	3896	G2	9870	B5
2846	B4	3819	D2	3897	F4	9871	B5
2847	G3	3820	G5	3898	D5	9874	B4
2849	E5	3821	G5	3899	D5	9875	B4
2850	D2	3822	G4	5801	B5	9876	B5
2851	C1	3823	G4	5802	C5	9881	E1
2852	A2	3824	G5	6871	F1	9882	C4
2853	A3	3825	C4	6872	F1	9883	E1
2854	B4	3826	D4	6873	F1	9884	E1
2856	D2	3827	D3	6874	F2	9887	D1
2857	C1	3828	C1	6875	F1	9888	E5
2858	C1	3830	B4	7806	G3	9889	G4
2859	D2	3831	C1	7807	H3	9890	D5
2860	A3	3832	C2	7808	E2		
2861	A4	3833	C4	7812	F2		
2862	A4	3834	E3	7851	B2		
2863	A5	3837	B3	7871	I3		
2864	B3	3838	B4	7873	G1		
2865	C5	3839	B3	7874	E1		
2866	E3	3840	B3	7875	C5		
2867	G5	3841	G2	9800	C4		



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1805	B5	2871	I4	3844	F3	9804	B2
1810	C3	2872	G2	3845	B4	9805	A4
1876	I1	2873	H3	3846	F3	9806	B2
1878	I4	2874	I2	3847	F2	9808	A4
1880	B2	2875	I3	3848	B4	9809	A4
1881	C4	2876	H3	3849	G2	9810	A4
1882	B1	2877	G1	3850	G3	9811	A4
2800	D4	2878	G1	3851	H3	9812	A2
2801	D3	2879	H1	3852	G3	9821	H3
2802	E4	2880	C5	3853	G3	9822	H2
2803	D3	2881	F1	3854	B1	9823	C3
2804	D4	2882	H2	3855	B1	9825	E3
2805	D3	2884	G4	3856	C3	9826	G1
2806	D3	2887	C3	3857	E5	9829	B4
2807	E4	3700	C1	3858	A4	9831	F1
2808	D3	3701	B3	3859	A4	9832	F2
2809	G3	3702	B2	3860	A4	9833	F3
2810	E4	3703	B2	3861	A4	9834	F3
2811	D3	3704	B2	3862	D4	9835	G4
2812	F4	3705	A3	3863	B3	9837	E2
2813	F4	3706	A3	3864	C1	9839	B4
2814	F4	3707	A3	3865	B2	9840	D1
2815	F4	3708	A3	3866	C2	9841	B2
2817	F4	3709	D2	3867	C4	9842	B2
2819	F4	3710	D2	3869	B2	9843	B2
2820	F5	3711	A3	3870	C5	9844	B1
2821	G5	3712	B5	3871	G1	9845	B1
2822	D5	3713	F1	3872	D1	9846	C1
2823	C3	3714	F1	3873	D1	9847	D1
2824	C4	3715	F2	3874	D1	9848	D1
2825	D4	3716	B4	3875	E2	9849	B3
2826	D2	3717	B4	3876	E2	9850	F3
2827	C2	3720	C1	3877	G1	9852	A2
2828	B3	3725	B5	3878	F2	9853	E1
2829	I3	3726	B5	3879	H3	9854	D1
2830	C2	3800	E4	3880	H3	9855	B3
2831	C4	3801	E4	3881	H2	9856	D4
2832	E3	3802	E4	3882	I2	9857	B4
2833	B4	3803	E4	3883	I3	9858	F4
2834	C3	3804	E4	3884	H3	9859	B4
2835	B4	3805	D4	3885	H3	9860	D4
2836	F3	3806	D4	3886	H4	9861	B3
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2838	H2	3808	E4	3888	H1	9863	D5
2839	G2	3809	B3	3889	C2	9864	G2
2840	G2	3810	F4	3890	D1	9865	A1
2841	B3	3812	F4	3891	F4	9866	D5
2842	F3	3813	G5	3893	G4	9867	H1
2843	G3	3816	G5	3894	D3	9868	A5
2844	B4	3817	G4	3895	D3	9869	E5
2845	F2	3818	F4	3896	G2	9870	B5
2846	B4	3819	D2	3897	F4	9871	B5
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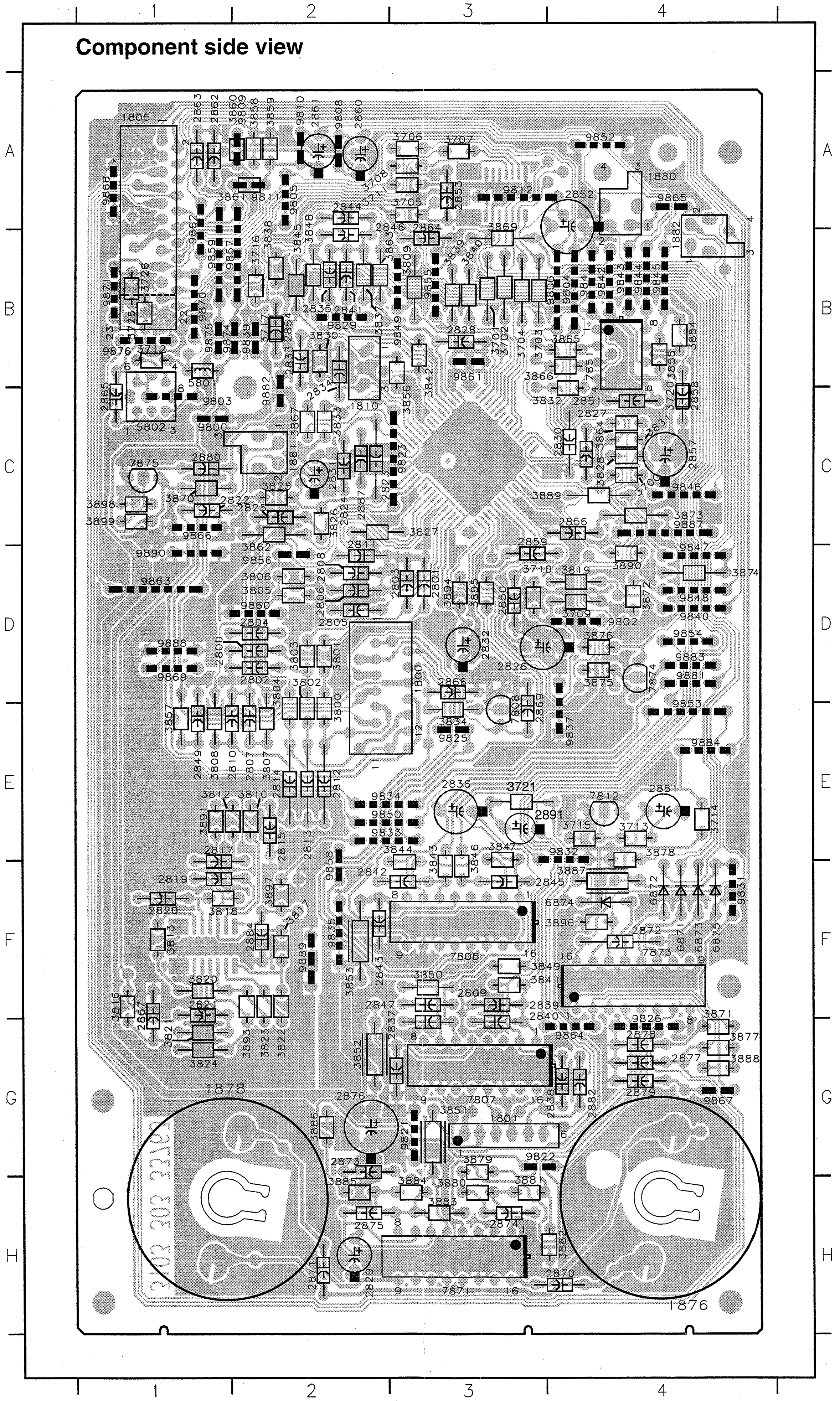
2849	E5	3821	G5	3899	D5	9875	B4
2850	D2	3822	G4	5801	B5	9876	B5
2851	C1	3823	G4	5802	C5	9881	E1
2852	A2	3824	G5	6871	F1	9882	C4
2853	A3	3825	C4	6872	F1	9883	E1
2854	B4	3826	D4	6873	F1	9884	E1
2856	D2	3827	D3	6874	F2	9887	D1
2857	C1	3828	C1	6875	F1	9888	E5
2858	C1	3830	B4	7806	G3	9889	G4
2859	D2	3831	C1	7807	H3	9890	D5
2860	A3	3832	C2	7808	E2		
2861	A4	3833	C4	7812	F2		
2862	A4	3834	E3	7851	B2		
2863	A5	3837	B3	7871	I3		
2864	B3	3838	B4	7873	G1		
2865	C5	3839	B3	7874	E1		
2866	E3	3840	B3	7875	C5		
2867	G5	3841	G2	9800	C4		


Component side view

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1810	B2	2872	F4	3845	B2	9805	A2
1876	H4	2873	G2	3846	F3	9806	B4
1878	H1	2874	H3	3847	E3	9808	A2
1880	B4	2875	H2	3848	B2	9809	A2
1881	C2	2876	G3	3849	F3	9810	A2
1882	B4	2877	G4	3850	F3	9811	A2
2800	D2	2878	G4	3851	G3	9812	A3
2801	D3	2879	G4	3852	G2	9821	G3
2802	D2	2880	C1	3853	F2	9822	G3
2803	D3	2881	E4	3854	B4	9823	C3
2804	D2	2882	G4	3855	B4	9825	E3
2805	D2	2884	F2	3856	B3	9826	G4
2806	D2	2887	C2	3857	E1	9829	B2
2807	E2	3700	C4	3858	A2	9831	F4
2808	D2	3701	B3	3859	A2	9832	E4
2809	F3	3702	B3	3860	A2	9833	E2
2810	E2	3703	B3	3861	A2	9834	E2
2811	D2	3704	B3	3862	C2	9835	F2
2812	E2	3705	A3	3863	B2	9837	E4
2813	E2	3706	A3	3864	C4	9839	B2
2814	E2	3707	A3	3865	B4	9840	D4
2815	E2	3708	A3	3866	B4	9841	B4
2817	F1	3709	D4	3867	C2	9842	B4
2819	F1	3710	D3	3869	B3	9843	B4
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2822	C1	3713	E4	3872	D4	9846	C4
2823	C2	3714	E4	3873	C4	9847	D4
2824	C2	3715	E4	3874	D4	9848	D4
2825	C2	3716	B2	3875	D4	9849	B3
2826	D3	3717	B2	3876	D4	9850	E2
2827	C4	3720	C4	3877	G4	9852	A4
2828	B3	3725	B1	3878	E4	9853	E4
2829	H2	3726	B1	3879	G3	9854	D4
2830	C4	3800	E2	3880	H3	9855	B3
2831	C2	3801	D2	3881	H3	9856	D2
2832	D3	3802	E2	3882	H4	9857	B2
2833	B2	3803	D2	3883	H3	9858	F2
2834	B2	3804	E2	3884	H3	9859	B1
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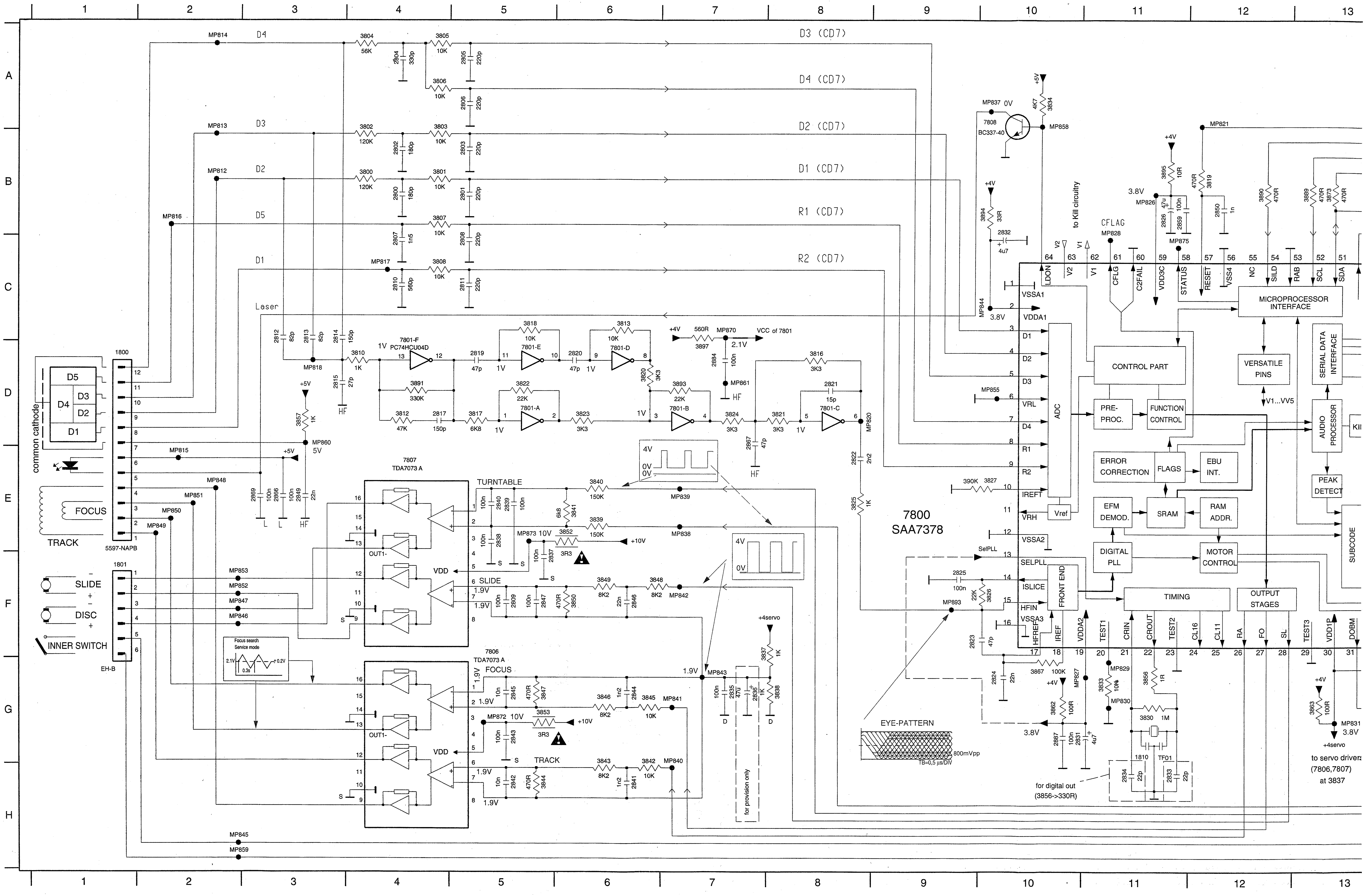
2836	E3	3806	D2	3886	G2	9861	B3
2837	G2	3807	E2	3887	F4	9862	A1
2838	G4	3808	E1	3888	G4	9863	D1
2839	F3	3809	B3	3889	C4	9864	G4
2840	F3	3810	E2	3890	D4	9865	A4
2841	B2	3812	E2	3891	E1	9866	C1
2842	F3	3813	F1	3893	F2	9867	G4
2843	F2	3816	F1	3894	D3	9868	A1
2844	B2	3817	F2	3895	D3	9869	D1
2845	F3	3818	F1	3896	F4	9870	B1
2846	B2	3819	D4	3897	F2	9871	B1
2847	F3	3820	F1	3898	C1	9874	B2
2849	E1	3821	G1	3899	C1	9875	B1
2850	D3	3822	F2	5801	B1	9876	B1
2851	C4	3823	F2	5802	C1	9881	D4
2852	A4	3824	G1	6871	F4	9882	C2
2853	A3	3825	C2	6872	F4	9883	D4
2854	B2	3826	C2	6873	F4	9884	E4
2856	C4	3827	C2	6874	F4	9887	C4
2857	C4	3828	C4	6875	F4	9888	D1
2858	C4	3830	B2	7806	F3	9889	F2
2859	C3	3831	C4	7807	G3	9890	D1
2860	A2	3832	C4	7808	E3		
2861	A2	3833	C2	7812	E4		
2862	A1	3834	E3	7851	B4		
2863	A1	3837	B2	7871	H3		
2864	B3	3838	B2	7873	F4		
2865	C1	3839	B3	7874	D4		
2866	E3	3840	B3	7875	C1		
2867	F1	3841	F3	9800	C1		

Circuit Diagram Main Board part1


1
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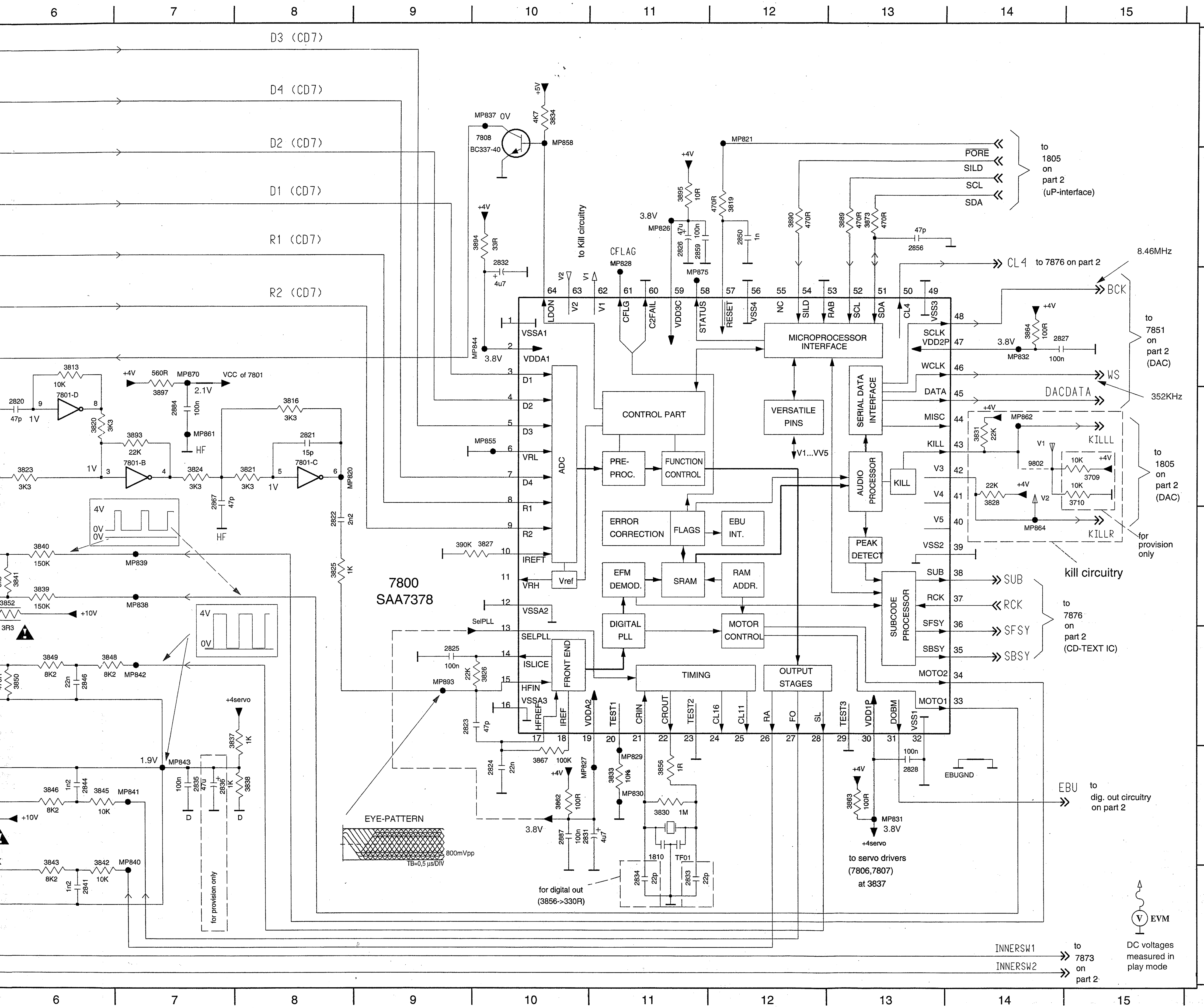
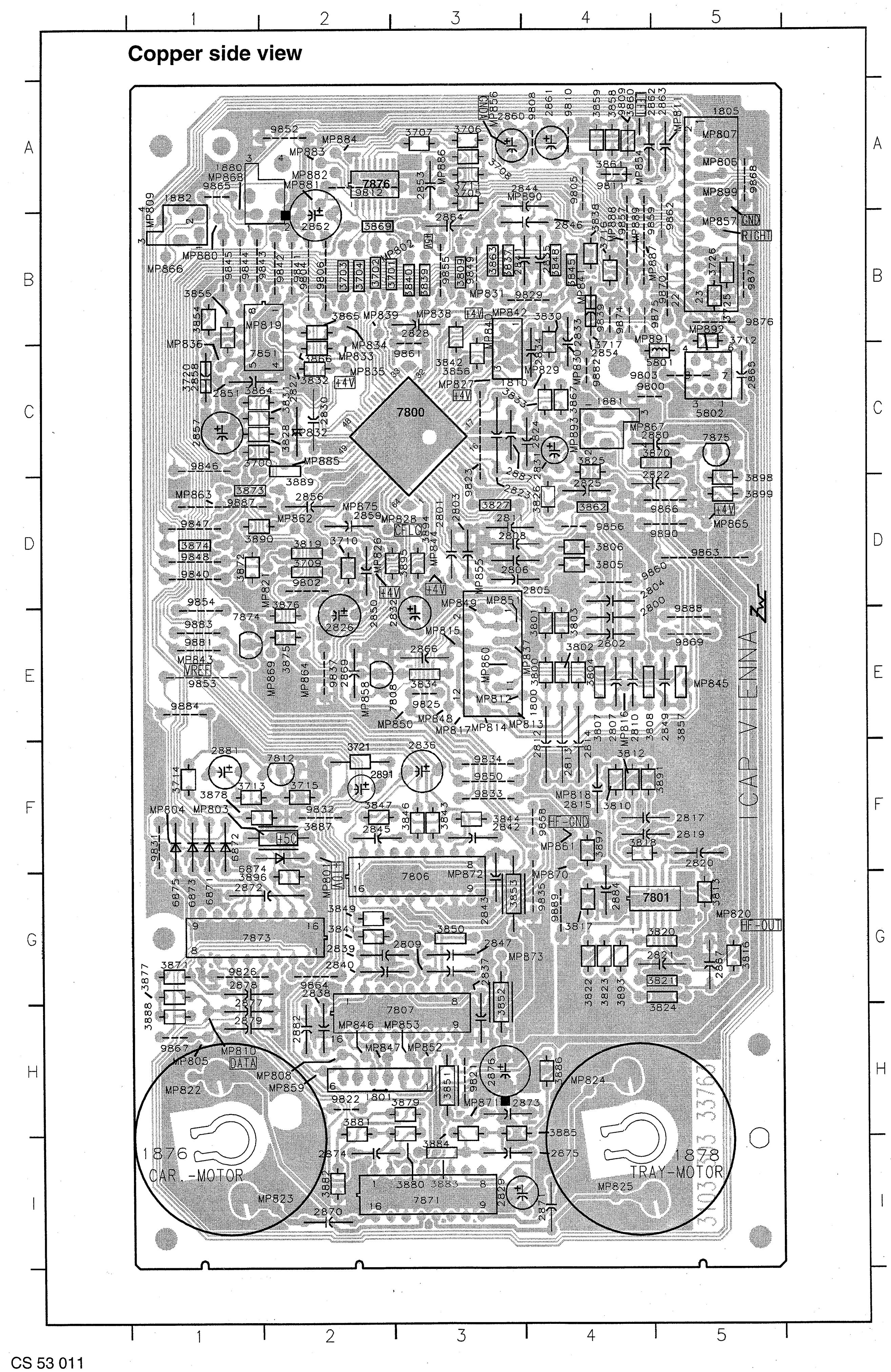
9
10
11
12
13
A
B
C
D
E
F
G
H
MP814
D4
3804
56K
2804
330p
3805
10K
2805
220p
3806
10K
2806
220p
D3 (CD7)
D4 (CD7)
MP813
D3
3802
120K
2802
180p
3803
10K
2803
220p
D2 (CD7)
MP812
D2
3800
120K
2800
180p
3801
10K
2801
220p
D1 (CD7)
MP816
D5
3807
10K
2807
1n5
2808
220p
R1 (CD7)
D1
MP817
3808
10K
2810
560p
2811
220p
R2 (CD7)
Laser
2812
82p
2813
82p
2814
150p
3810
1K
MP818
2815
27p
HF
1V
7801-F
PC74HCU04D
13
12
2819
47p
3891
330K
3812
47K
2817
150p
3817
6K8
1V
3818
10K
7801-E
11
10
2820
47p
3822
22K
7801-A
1
2
3823
3K3
3813
10K
7801-D
9
8
3820
3K3
3893
22K
7801-B
3
4
+4V
560R
3897
MP870
2.1V
VCC of 7801
2884
100n
MP861
HF
3816
3K3
2821
15p
3824
3K3
3821
3K3
7801-C
5
6
2867
47p
MP820
2822
2n2
3825
1K
+5V
3857
1K
MP860
5V
MP815
+5V
common cathode
D5
D3
D4
D2
D1
1800
12
11
10
9
8
7
6
5
4
3
2
1
5597-NAPB
FOCUS
TRACK
MP848
MP851
MP850
MP849
2869
100n
2866
100n
2849
22n
2868
HF
7807
TDA7073 A
TURNTABLE
16
15
14
13
OUT1-
12
11
10
9
S
VDD
2840
100n
2839
100n
2838
100n
3840
150K
MP839
6K8
3841
3839
150K
MP838
MP873
10V
3852
3R3
2837
100n
+10V
SLIDE
1.9V
2809
100n
2847
100n
3850
470R
3849
8K2
2846
22n
3848
8K2
MP842
4V
0V
0V
1801
SLIDE
DISC
INNER SWITCH
EH-B
MP853
MP852
MP847
MP846
Focus search
Service mode
2.1V
+0.2V
0.3s
7806
TDA7073 A
FOCUS
2845
10n
3847
470R
3846
8K2
2844
1n2
3845
10K
MP841
MP872
10V
3853
3R3
2843
100n
+10V
TRACK
2842
10n
3844
470R
3843
8K2
2841
1n2
3842
10K
MP840
1.9V
MP843
2835
100n
2836
47u
3837
1K
3838
1K
+4servo
D
for provision only
MP845
MP859
MP837
0V
7808
BC337-40
+5V
4K7
3834
MP858
+4V
3894
33R
2832
4u7
MP844
3.8V
to Kill circuitry
V2
V1
CFLAG
MP828
+4V
3895
10R
3.8V
MP826
2826
47u
2859
100n
MP875
470R
3819
2850
1n
MP821
3890
470R
3889
470R
3873
470R
64
63
62
61
60
59
58
57
56
55
54
53
52
51
LDON
CFLG
C2FAIL
VDD3C
STATUS
RESET
VSS4
NC
SILD
RAB
SCL
SDA
VSSA1
VDDA1
D1
D2
D3
VRL
D4
R1
R2
IREFT
VRH
VSSA2
SELPLL
ISLICE
HFIN
VSSA3
HFREF
IREF
VDDA2
TEST1
CRIN
CROUT
TEST2
CL16
CL11
RA
FO
SL
TEST3
VDD1P
DOBM
MICROPROCESSOR INTERFACE
CONTROL PART
VERSATILE PINS
SERIAL DATA INTERFACE
V1...VV5
PRE-PROC.
FUNCTION CONTROL
ADC
AUDIO PROCESSOR
KI
ERROR CORRECTION
FLAGS
EBU INT.
PEAK DETECT
EFM DEMOD.
SRAM
RAM ADDR.
Vref
SUBCODE
DIGITAL PLL
MOTOR CONTROL
FRONT END
TIMING
OUTPUT STAGES
7800
SAA7378
MP855
390K
3827
SelPLL
2825
100n
22K
3826
MP893
2823
47p
2824
22n
3867
100K
+4V
3862
100R
MP827
2887
100n
2831
4u7
3833
10K
MP829
3856
1R
MP830
3830
1M
1810
TF01
2834
22p
2833
22p
for digital out
(3856->330R)
3.8V
EYE-PATTERN
800mVpp
TB=0,5 µs/DIV
+4V
3863
100R
MP831
3.8V
+4servo
to servo drivers
(7806,7807)
at 3837

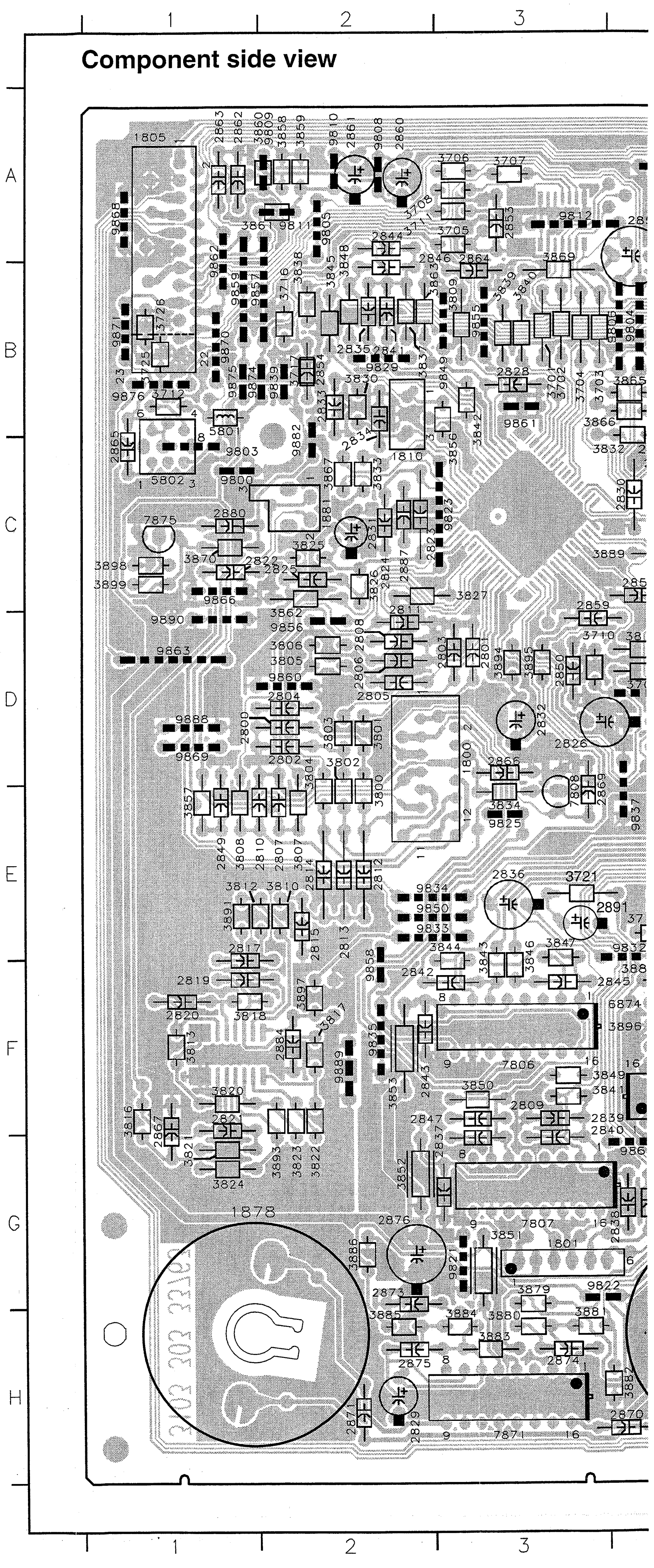

D3 (CD7)
D4 (CD7)
D2 (CD7)
D1 (CD7)
R1 (CD7)
R2 (CD7)
7800
SAA7378
7808
BC337-40
MP837 0V
to Kill circuitry
CFLAG
ADC
CONTROL PART
PRE-PROC.
FUNCTION CONTROL
ERROR CORRECTION
FLAGS
EBU INT.
EFM DEMOD.
SRAM
RAM ADDR.
DIGITAL PLL
MOTOR CONTROL
FRONT END
TIMING
OUTPUT STAGES
MICROPROCESSOR INTERFACE
VERSATILE PINS
V1...VV5
SERIAL DATA INTERFACE
AUDIO PROCESSOR
KILL
PEAK DETECT
SUBCODE PROCESSOR
Vref
PORE
SILD
SCL
SDA
to 1805 on part 2 (uP-interface)
CL4 to 7876 on part 2
8.46MHz
BCK
WS
DACDATA
to 7851 on part 2 (DAC)
352KHz
KILLL
KILLR
to 1805 on part 2 (DAC)
for provision only
kill circuitry
SUB
RCK
SFSY
SBSY
to 7876 on part 2 (CD-TEXT IC)
EBU
to dig. out circuitry on part 2
to servo drivers (7806,7807) at 3837
for digital out (3856->330R)
EYE-PATTERN
800mVpp
TB=0,5 µs/DIV
for provision only
INNERSW1
INNERSW2
to 7873 on part 2
EVM
DC voltages measured in play mode
VCC of 7801
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H

1800	D1
1801	F1
1810	G11
2800	B4
2801	B5
2802	B4
2803	B5
2804	A4
2805	A5
2806	A5
2807	C4
2808	C5
2809	F5
2810	C4
2811	C5
2812	C3
2813	C3
2814	C3
2815	D3
2817	D4
2819	D5
2820	D6
2821	D8
2822	E8
2823	F9
2824	G9
2825	F9
2826	B11
2827	C14
2828	G13
2831	G10
2832	B10
2833	H11
2834	H11
2835	G7
2836	G7
2837	F5
2838	E5
2839	E5
2840	E5
2841	H6
2842	H5
2843	G5
2844	G6
2845	G5
2846	F6
2847	F5
2849	E3
2850	B12
2856	B13
2859	B11
2866	E3
2867	D7
2869	E3
2884	D7
2887	G10
3709	D15
3710	D15
3800	B4
3801	B4
3802	A4
3803	A4
3804	A4
3805	A4
3806	A4
3807	B4
3808	C4
3810	D4
3812	D4
3813	C6
3816	D8
3817	D5
3818	C5
3819	B12
3820	D6
3821	D8
3822	D5
3823	D6
3824	D7
3825	E8
3826	F10
3827	E10
3828	D14
3830	G11
3831	D14
3833	G11
3834	B10
3837	F8
3838	G8
3839	E6
3840	E6
3841	E6
3842	G6
3843	G6
3844	H5
3845	G6
3846	G6
3847	G5
3848	F6
3849	F6
3850	F6
3852	E6
3853	G5
3856	G11
3857	D3
3862	G10
3863	G13
3864	C14
3867	G10
3873	B13
3889	B13
3890	B12
3891	D4
3893	D7
3894	B10
3895	B11
3897	D7
7800	E9
7801-A	D5
7801-B	D7
7801-C	D8
7801-D	D6
7801-E	D5
7801-F	D4
7806	G5
7807	E4
7808	B10
9802	D14
MP812	B2
MP813	A2
MP814	A2
MP815	E2
MP816	B2
MP817	C4
MP818	D3
MP820	D8
MP821	B12
MP826	B11
MP827	G10
MP828	B11
MP829	G11
MP830	G11
MP831	G13
MP832	C14
MP837	B10
MP838	E6
MP839	E6
MP840	G7
MP841	G7
MP842	F7
MP843	G7
MP844	C10
MP845	H3
MP846	F2
MP847	F2
MP848	E2
MP849	E2
MP850	E2
MP851	E2
MP852	F2
MP853	F2
MP855	D10
MP858	B10
MP859	H3
MP860	D3
MP861	D7
MP862	D14
MP864	E14
MP870	C7
MP872	G5
MP873	E5
MP875	C11
MP893	F9

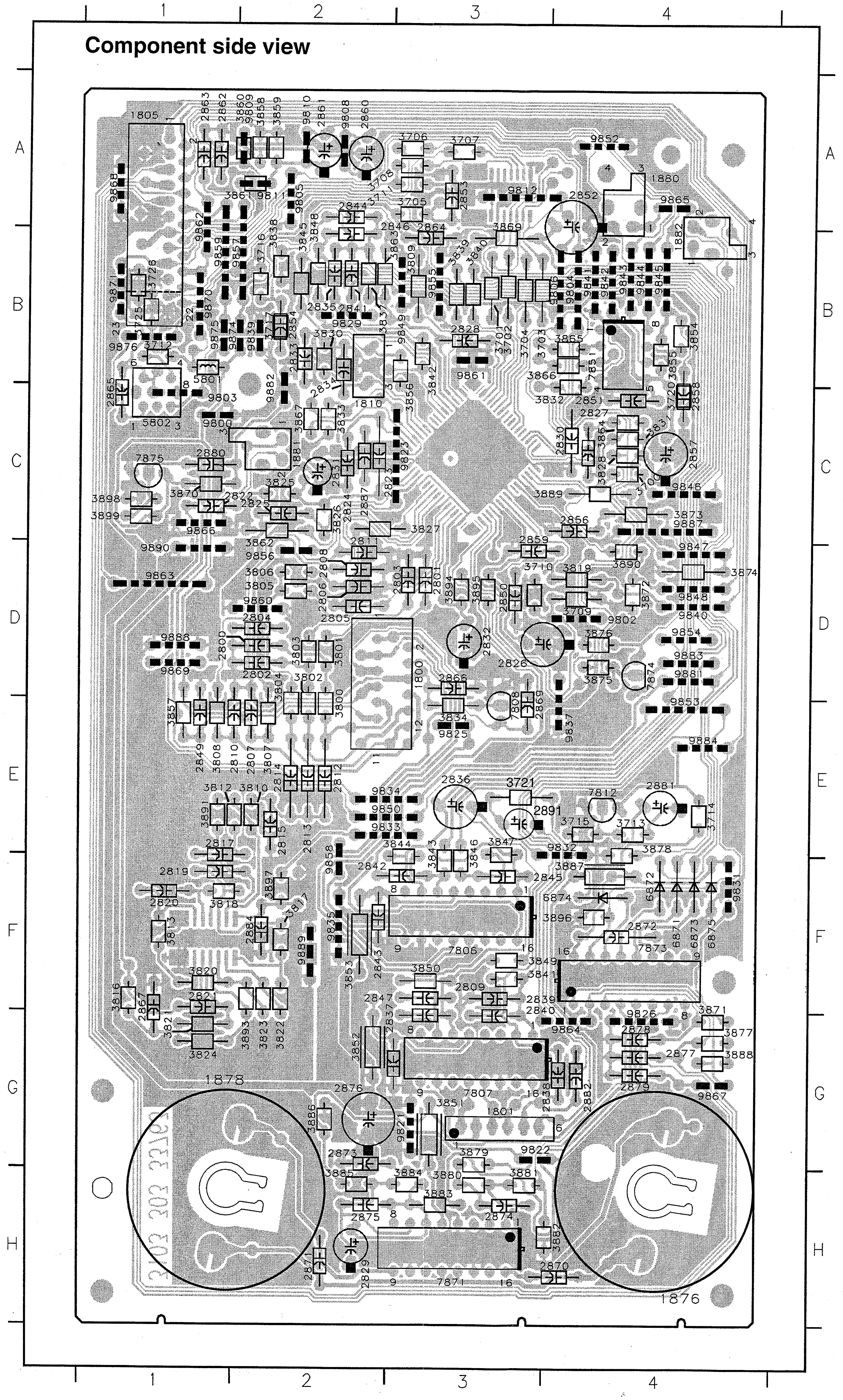


CS 53 011

1800	E3
1801	H2
1805	B5
1810	C3
1876	I1
1878	I4
1880	B2
1881	C4
1882	B1
2800	D4
2801	D3
2802	E4
2803	D3
2804	D4
2805	D3
2806	D3
2807	E4
2808	D3
2809	G3
2810	E4
2811	D3
2812	F4
2813	F4
2814	F4
2815	F4
2817	F4
2819	F4
2820	F5
2821	G5
2822	D5
2823	C3
2824	C4
2825	D4
2826	D2
2827	C2
2828	B3
2829	I3
2830	C2
2831	C4
2832	E3
2833	B4
2834	C3
2835	B4
2836	F3
2837	H3
2838	H2
2839	G2
2840	G2
2841	B3
2842	F3
2843	G3
2844	B4
2845	F2
2846	B4
2847	G3
2849	E5
2850	D2
2851	C1
2852	A2
2853	A3
2854	B4
2856	D2
2857	C1
2858	C1
2859	D2
2860	A3
2861	A4
2862	A4
2863	A5
2864	B3
2865	C5
2866	E3
2867	G5
2869	E2
2870	I2
2871	I4
2872	G2
2873	H3
2874	I2
2875	I3
2876	H3
2877	G1
2878	G1
2879	H1
2880	C5
2881	F1
2882	H2
2884	G4
2887	C3
3700	C1
3701	B3
3702	B2
3703	B2
3704	B2
3705	A3
3706	A3
3707	A3
3708	A3
3709	D2
3710	D2
3711	A3
3712	B5
3713	F1
3714	F1
3715	F2
3716	B4
3717	B4
3720	C1
3725	B5
3726	B5
3800	E4
3801	E4
3802	E4
3803	E4
3804	E4
3805	D4
3806	D4
3807	E4
3808	E4
3809	B3
3810	F4
3812	F4
3813	G5
3816	G5
3817	G4
3818	F4
3819	D2
3820	G5
3821	G5
3822	G4
3823	G4
3824	G5
3825	C4
3826	D4
3827	D3
3828	C1
3830	B4
3831	C1
3832	C2
3833	C4
3834	E3
3837	B3
3838	B4
3839	B3
3840	B3
3841	G2
3842	B3
3843	F3
3844	F3
3845	B4
3846	F3
3847	F2
3848	B4
3849	G2
3850	G3
3851	H3
3852	G3
3853	G3
3854	B1
3855	B1
3856	C3
3857	E5
3858	A4
3859	A4
3860	A4
3861	A4
3862	D4
3863	B3
3864	C1
3865	B2
3866	C2
3867	C4
3869	B2
3870	C5
3871	G1
3872	D1
3873	D1
3874	D1
3875	E2
3876	E2
3877	G1
3878	F2
3879	H3
3880	H3
3881	H2
3882	I2
3883	I3
3884	H3
3885	H3
3886	H4
3887	F2
3888	H1
3889	C2
3890	D1
3891	F4
3893	G4
3894	D3
3895	D3
3896	G2
3897	F4
3898	D5
3899	D5
5801	B5
5802	C5
6871	F1
6872	F1
6873	F1
6874	F2
6875	F1
7806	G3
7807	H3
7808	E2
7812	F2
7851	B2
7871	I3
7873	G1
7874	E1
7875	C5
9800	C4
9802	D2
9803	C5
9804	B2
9805	A4
9806	B2
9808	A4
9809	A4
9810	A4
9811	A4
9812	A2
9821	H3
9822	H2
9823	C3
9825	E3
9826	G1
9829	B4
9831	F1
9832	F2
9833	F3
9834	F3
9835	G4
9837	E2
9839	B4
9840	D1
9841	B2
9842	B2
9843	B2
9844	B1
9845	B1
9846	C1
9847	D1
9848	D1
9849	B3
9850	F3
9852	A2
9853	E1
9854	D1
9855	B3
9856	D4
9857	B4
9858	F4
9859	B4
9860	D4
9861	B3
9862	B5
9863	D5
9864	G2
9865	A1
9866	D5
9867	H1
9868	A5
9869	E5
9870	B5
9871	B5
9874	B4
9875	B4
9876	B5
9881	E1
9882	C4
9883	E1
9884	E1
9887	D1
9888	E5
9889	G4
9890	D5



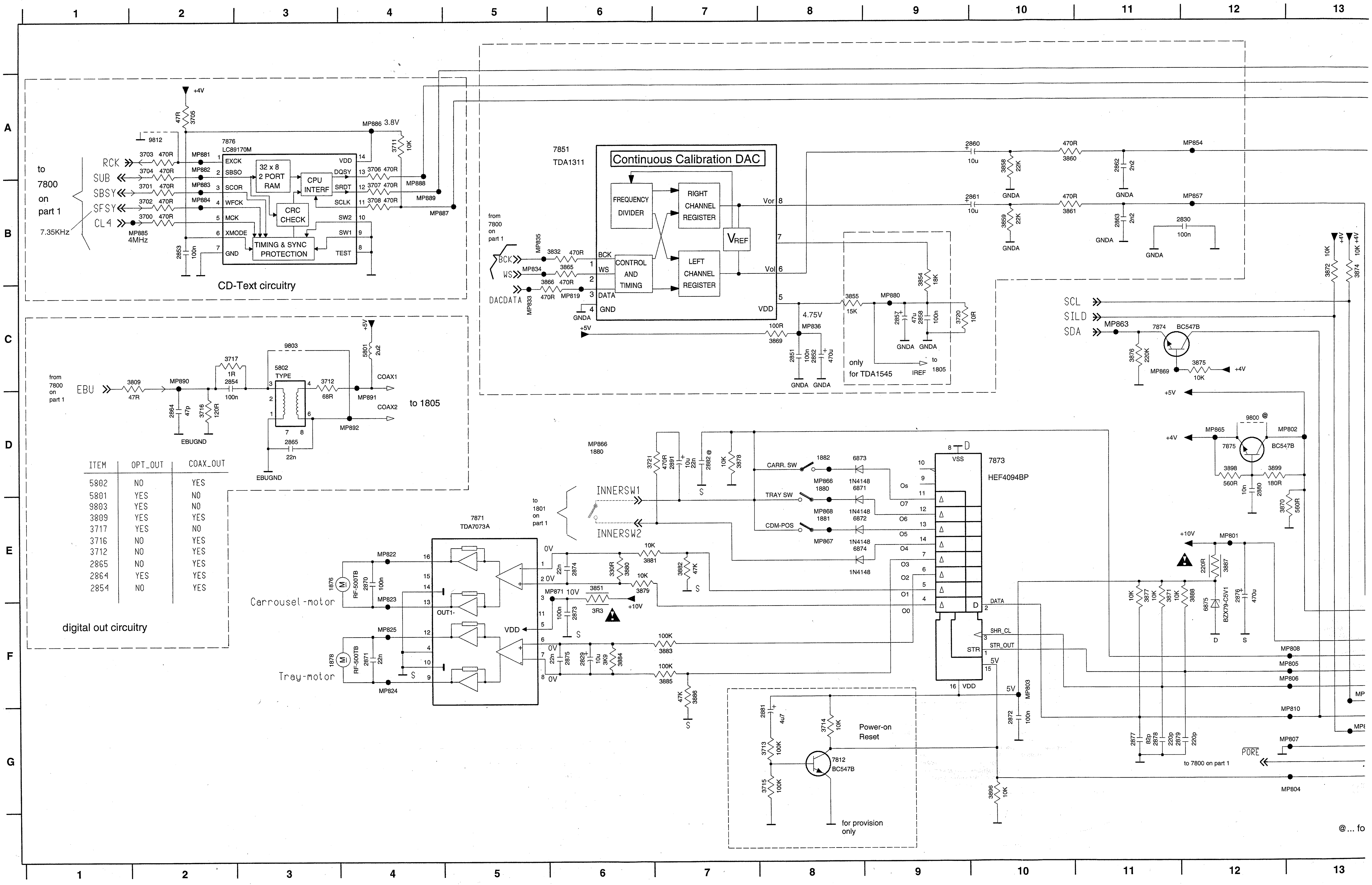
1800	E3
1801	H2
1805	B5
1810	C3
1876	I1
1878	I4
1880	B2
1881	C4
1882	B1
2800	D4
2801	D3
2802	E4
2803	D3
2804	D4
2805	D3
2806	D3
2807	E4
2808	D3
2809	G3
2810	E4
2811	D3
2812	F4
2813	F4
2814	F4
2815	F4
2817	F4
2819	F4
2820	F5
2821	G5
2822	D5
2823	C3
2824	C4
2825	D4
2826	D2
2827	C2
2828	B3
2829	I3
2830	C2
2831	C4
2832	E3
2833	B4
2834	C3
2835	B4
2836	F3
2837	H3
2838	H2
2839	G2
2840	G2
2841	B3
2842	F3
2843	G3
2844	B4
2845	F2
2846	B4
2847	G3
2849	E5
2850	D2
2851	C1
2852	A2
2853	A3
2854	B4
2856	D2
2857	C1
2858	C1
2859	D2
2860	A3
2861	A4
2862	A4
2863	A5
2864	B3
2865	C5
2866	E3
2867	G5
2869	E2
2870	I2
2871	I4
2872	G2
2873	H3
2874	I2
2875	I3
2876	H3
2877	G1
2878	G1
2879	H1
2880	C5
2881	F1
2882	H2
2884	G4
2887	C3
3700	C1
3701	B3
3702	B2
3703	B2
3704	B2
3705	A3
3706	A3
3707	A3
3708	A3
3709	D2
3710	D2
3711	A3
3712	B5
3713	F1
3714	F1
3715	F2
3716	B4
3717	B4
3720	C1
3725	B5
3726	B5
3800	E4
3801	E4
3802	E4
3803	E4
3804	E4
3805	D4
3806	D4
3807	E4
3808	E4
3809	B3
3810	F4
3812	F4
3813	G5
3816	G5
3817	G4
3818	F4
3819	D2
3820	G5
3821	G5
3822	G4
3823	G4
3824	G5
3825	C4
3826	D4
3827	D3
3828	C1
3830	B4
3831	C1
3832	C2
3833	C4
3834	E3
3837	B3
3838	B4
3839	B3
3840	B3
3841	G2
3842	B3
3843	F3
3844	F3
3845	B4
3846	F3
3847	F2
3848	B4
3849	G2
3850	G3
3851	H3
3852	G3
3853	G3
3854	B1
3855	B1
3856	C3
3857	E5
3858	A4
3859	A4
3860	A4
3861	A4
3862	D4
3863	B3
3864	C1
3865	B2
3866	C2
3867	C4
3869	B2
3870	C5
3871	G1
3872	D1
3873	D1
3874	D1
3875	E2
3876	E2
3877	G1
3878	F2
3879	H3
3880	H3
3881	H2
3882	I2
3883	I3
3884	H3
3885	H3
3886	H4
3887	F2
3888	H1
3889	C2
3890	D1
3891	F4
3893	G4
3894	D3
3895	D3
3896	G2
3897	F4
3898	D5
3899	D5
5801	B5
5802	C5
6871	F1
6872	F1
6873	F1
6874	F2
6875	F1
7806	G3
7807	H3
7808	E2
7812	F2
7851	B2
7871	I3
7873	G1
7874	E1
7875	C5
9800	C4
9802	D2
9803	C5
9804	B2
9805	A4
9806	B2
9808	A4
9809	A4
9810	A4
9811	A4
9812	A2
9821	H3
9822	H2
9823	C3
9825	E3
9826	G1
9829	B4
9831	F1
9832	F2
9833	F3
9834	F3
9835	G4
9837	E2
9839	B4
9840	D1
9841	B2
9842	B2
9843	B2
9844	B1
9845	B1
9846	C1
9847	D1
9848	D1
9849	B3
9850	F3
9852	A2
9853	E1
9854	D1
9855	B3
9856	D4
9857	B4
9858	F4
9859	B4
9860	D4
9861	B3
9862	B5
9863	D5
9864	G2
9865	A1
9866	D5
9867	H1
9868	A5
9869	E5
9870	B5
9871	B5
9874	B4
9875	B4
9876	B5
9881	E1
9882	C4
9883	E1
9884	E1
9887	D1
9888	E5
9889	G4
9890	D5



Component side view

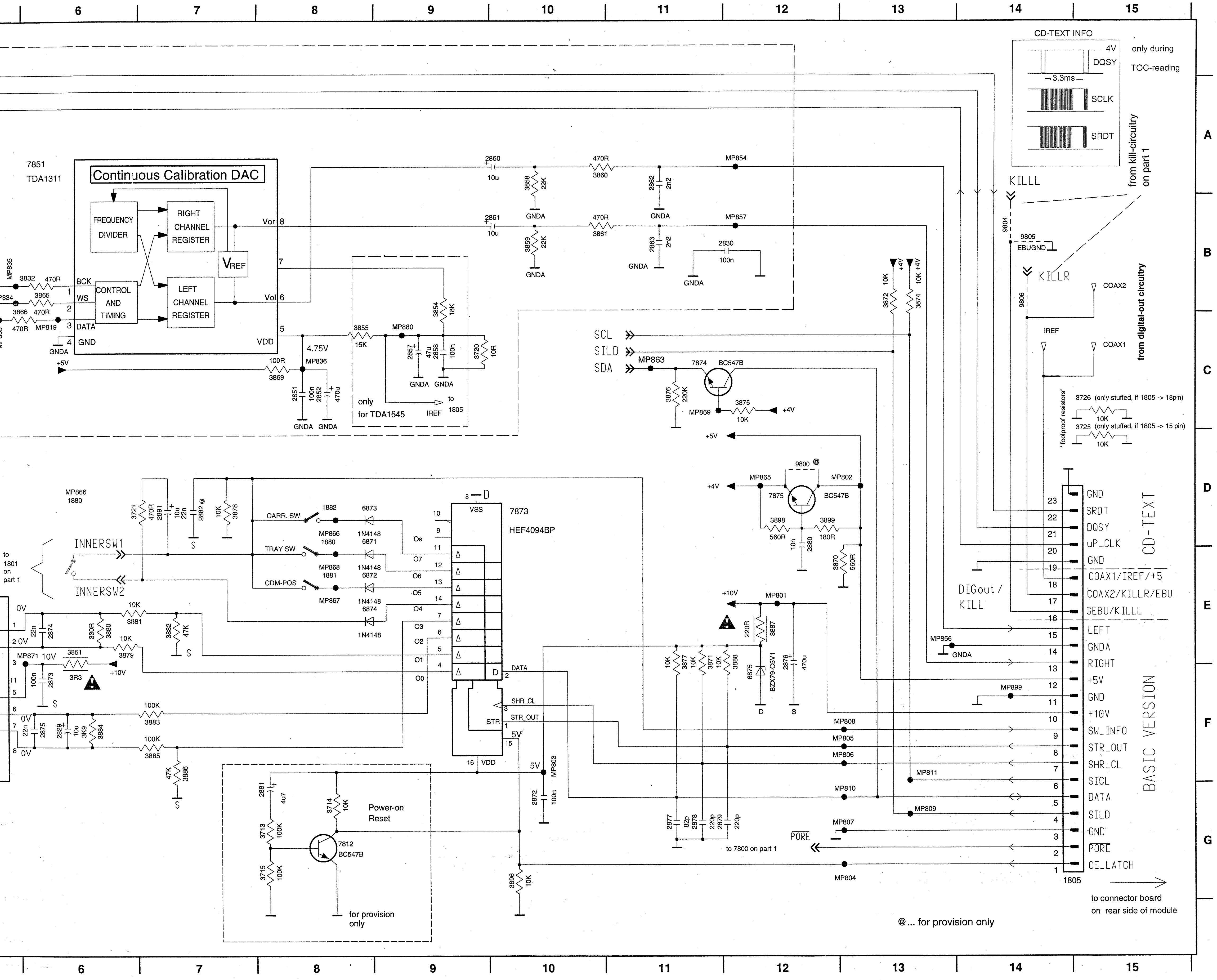
1800	D3
1801	G3
1805	A1
1810	B2
1876	H4
1878	H1
1880	B4
1881	C2
1882	B4
2800	D2
2801	D3
2802	D2
2803	D3
2804	D2
2805	D2
2806	D2
2807	E2
2808	D2
2809	F3
2810	E2
2811	D2
2812	E2
2813	E2
2814	E2
2815	E2
2817	F1
2819	F1
2820	F1
2821	G1
2822	C1
2823	C2
2824	C2
2825	C2
2826	D3
2827	C4
2828	B3
2829	H2
2830	C4
2831	C2
2832	D3
2833	B2
2834	B2
2835	B2
2836	E3
2837	G2
2838	G4
2839	F3
2840	F3
2841	B2
2842	F3
2843	F2
2844	B2
2845	F3
2846	B2
2847	F3
2849	E1
2850	D3
2851	C4
2852	A4
2853	A3
2854	B2
2856	C4
2857	C4
2858	C4
2859	C3
2860	A2
2861	A2
2862	A1
2863	A1
2864	B3
2865	C1
2866	E3
2867	F1
2869	E3
2870	H4
2871	H2
2872	F4
2873	G2
2874	H3
2875	H2
2876	G3
2877	G4
2878	G4
2879	G4
2880	C1
2881	E4
2882	G4
2884	F2
2887	C2
3700	C4
3701	B3
3702	B3
3703	B3
3704	B3
3705	A3
3706	A3
3707	A3
3708	A3
3709	D4
3710	D3
3711	A3
3712	B1
3713	E4
3714	E4
3715	E4
3716	B2
3717	B2
3720	C4
3725	B1
3726	B1
3800	E2
3801	D2
3802	E2
3803	D2
3804	E2
3805	D2
3806	D2
3807	E2
3808	E1
3809	B3
3810	E2
3812	E2
3813	F1
3816	F1
3817	F2
3818	F1
3819	D4
3820	F1
3821	G1
3822	F2
3823	F2
3824	G1
3825	C2
3826	C2
3827	C2
3828	C4
3830	B2
3831	C4
3832	C4
3833	C2
3834	E3
3837	B2
3838	B2
3839	B3
3840	B3
3841	F3
3842	B3
3843	F3
3844	F3
3845	B2
3846	F3
3847	E3
3848	B2
3849	F3
3850	F3
3851	G3
3852	G2
3853	F2
3854	B4
3855	B4
3856	B3
3857	E1
3858	A2
3859	A2
3860	A2
3861	A2
3862	C2
3863	B2
3864	C4
3865	B4
3866	B4
3867	C2
3869	B3
3870	C1
3871	G4
3872	D4
3873	C4
3874	D4
3875	D4
3876	D4
3877	G4
3878	E4
3879	G3
3880	H3
3881	H3
3882	H4
3883	H3
3884	H3
3885	H2
3886	G2
3887	F4
3888	G4
3889	C4
3890	D4
3891	E1
3893	F2
3894	D3
3895	D3
3896	F4
3897	F2
3898	C1
3899	C1
5801	B1
5802	C1
6871	F4
6872	F4
6873	F4
6874	F4
6875	F4
7806	F3
7807	G3
7808	E3
7812	E4
7851	B4
7871	H3
7873	F4
7874	D4
7875	C1
9800	C1
9802	D4
9803	C1
9804	B4
9805	A2
9806	B4
9808	A2
9809	A2
9810	A2
9811	A2
9812	A3
9821	G3
9822	G3
9823	C3
9825	E3
9826	G4
9829	B2
9831	F4
9832	E4
9833	E2
9834	E2
9835	F2
9837	E4
9839	B2
9840	D4
9841	B4
9842	B4
9843	B4
9844	B4
9845	B4
9846	C4
9847	D4
9848	D4
9849	B3
9850	E2
9852	A4
9853	E4
9854	D4
9855	B3
9856	D2
9857	B2
9858	F2
9859	B1
9860	D2
9861	B3
9862	A1
9863	D1
9864	G4
9865	A4
9866	C1
9867	G4
9868	A1
9869	D1
9870	B1
9871	B1
9874	B2
9875	B1
9876	B1
9881	D4
9882	C2
9883	D4
9884	E4
9887	C4
9888	D1
9889	F2
9890	D1

Circuit Diagram Main Board part2



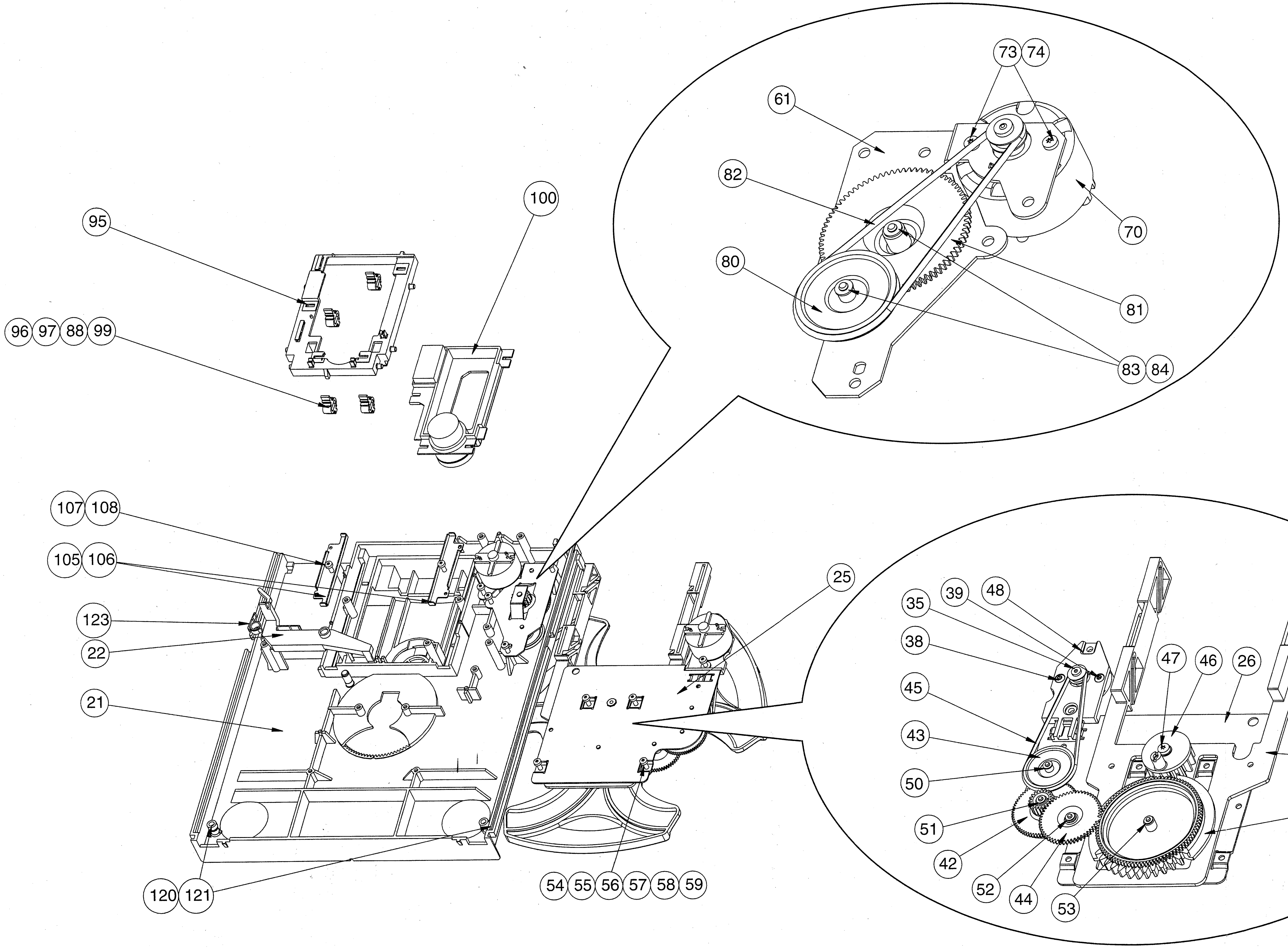
CD-Text circuitry
7876
LC89170M
32 x 8
2 PORT
RAM
CPU
INTERF
CRC
CHECK
TIMING & SYNC
PROTECTION
EXCK
SBSO
SCOR
WFCK
MCK
XMODE
GND
VDD
DQSY
SRDT
SCLK
SW2
SW1
TEST
RCK
SUB
SBSY
SFSY
CL4
to
7800
on
part 1
7.35KHz
MP885
4MHz
+4V
MP886 3.8V
7851
TDA1311
Continuous Calibration DAC
FREQUENCY
DIVIDER
RIGHT
CHANNEL
REGISTER
LEFT
CHANNEL
REGISTER
CONTROL
AND
TIMING
VREF
BCK
WS
DATA
GND
Vor
Vol
VDD
DACDATA
from
7800
on
part 1
4.75V
only
for TDA1545
IREF
to
1805
GNDA
SCL
SILD
SDA
MP863
7874
BC547B
+5V
+4V
9800 @
7875
BC547B
digital out circuitry
EBU
from
7800
on
part 1
5802
TYPE
9803
COAX1
COAX2
to 1805
EBUGND
MP866
1880
INNERSW1
INNERSW2
to
1801
on
part 1
CARR. SW
TRAY SW
CDM-POS
1N4148
7873
HEF4094BP
VSS
VDD
DATA
SHR_CL
STR_OUT
STR
7871
TDA7073A
Carrousel-motor
Tray-motor
RF-500TB
OUT1-
VDD
+10V
MP801
BZX79-C5V1
Power-on
Reset
7812
BC547B
for provision
only
to 7800 on part 1
PORE
MP808
MP805
MP806
MP810
MP807
MP804
@... fo

ITEM	OPT_OUT	COAX_OUT
5802	NO	YES
5801	YES	NO
9803	YES	NO
3809	YES	YES
3717	YES	NO
3716	NO	YES
3712	NO	YES
2865	NO	YES
2864	YES	YES
2854	NO	YES


6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
CD-TEXT INFO
4V
DQSY
3.3ms
SCLK
SRDT
only during
TOC-reading
from kill-circuitry on part 1
KILLL
KILLR
from digital-out circuitry
COAX2
COAX1
IREF
9804
9805
EBUGND
9806
7851
TDA1311
Continuous Calibration DAC
FREQUENCY DIVIDER
RIGHT CHANNEL REGISTER
LEFT CHANNEL REGISTER
CONTROL AND TIMING
VREF
Vor 8
Vol 6
VDD
BCK
WS
DATA
GND
4.75V
MP836
+5V
only for TDA1545
to 1805
IREF
GNDA
MP854
MP857
MP880
SCL
SILD
SDA
MP863
7874
BC547B
MP869
+4V
+5V
9800 @
MP865
MP802
7875
BC547B
3898 560R
3899 180R
3870 560R
MP866 1880
INNERSW1
INNERSW2
to 1801 on part 1
CARR. SW
TRAY SW
CDM-POS
1882
MP866
MP868 1881
MP867
6873
6871
6872
6874
1N4148
7873
HEF4094BP
VSS
VDD
DATA
SHR_CL
STR_OUT
STR
5V
MP871
10V
3851 3R3
+10V
MP801
3887 220R
6875 BZX79-C5V1
2876 470u
Power-on Reset
7812
BC547B
for provision only
MP803
MP808
MP805
MP806
MP810
MP811
MP809
MP807
MP804
MP856
MP899
PORE
to 7800 on part 1
DIGout/KILL
GND
SRDT
DQSY
uP_CLK
GND
COAX1/IREF/+5
COAX2/KILLR/EBU
GEBU/KILLL
LEFT
GNDA
RIGHT
+5V
GND
+10V
SW_INFO
STR_OUT
SHR_CL
SICL
DATA
SILD
GND
PORE
OE_LATCH
1805
CD-TEXT
BASIC VERSION
to connector board on rear side of module
3726 (only stuffed, if 1805 -> 18pin)
3725 (only stuffed, if 1805 -> 15 pin)
'foolproof resistors'
@... for provision only

1805	G14
1876	E3
1878	F3
1880	D8
1881	E8
1882	D8
2829	F6
2830	B12
2851	C8
2852	C8
2853	B2
2854	C2
2857	C9
2858	C9
2860	A10
2861	B10
2862	A11
2863	B11
2864	D2
2865	D3
2870	E4
2871	F4
2872	G10
2873	F6
2874	E6
2875	F6
2876	E12
2877	G11
2878	G11
2879	G11
2880	D12
2881	G8
2882	D7
3700	B2
3701	B2
3702	B2
3703	A2
3704	A2
3705	A2
3706	A4
3707	B4
3708	B4
3711	A4
3712	C3
3713	G8
3714	G8
3715	G8
3716	D2
3717	C2
3720	C9
3725	D15
3726	C15
3809	C2
3832	B6
3851	E6
3854	B9
3855	C8
3858	A10
3859	B10
3860	A10
3861	B10
3865	B6
3866	C6
3869	C8
3870	E12
3871	E11
3872	B13
3874	B13
3875	C12
3876	C11
3877	E11
3878	D7
3879	E6
3880	E6
3881	E6
3882	E7
3883	F7
3884	F6
3885	F7
3886	F7
3887	E12
3888	E12
3896	G10
3898	D12
3899	D12
5801	C4
5802	C3
6871	D8
6872	E8
6873	D8
6874	E8
6875	F12
7812	G8
7851	A6
7871	E5
7873	D10
7874	C11
7875	D12
7876	A2
9800	D12
9803	C3
9804	B14
9805	B14
9806	B14
9808	A10
9809	A10
9810	B10
9811	B10
9812	A2
MP801	E12
MP802	D13
MP803	F10
MP804	G13
MP805	F13
MP806	F13
MP807	G13
MP808	F13
MP809	G13
MP810	G13
MP811	F13
MP819	C6
MP822	E4
MP823	E4
MP824	F4
MP825	F4
MP833	C5
MP834	B5
MP835	B5
MP836	C8
MP854	A12
MP856	E13
MP857	B12
MP863	C11
MP865	D12
MP866	D8
MP867	E8
MP868	E8
MP869	C11
MP871	E6
MP880	C9
MP881	A2
MP882	A2
MP883	B2
MP884	B2
MP885	B2
MP886	A4
MP887	B4
MP888	B4
MP889	B4
MP890	C2
MP891	D4
MP892	D4
MP899	F14

EXPLODED VIEW (3CDC MODULE)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100
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123
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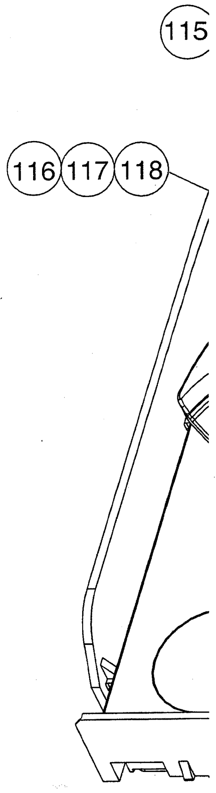
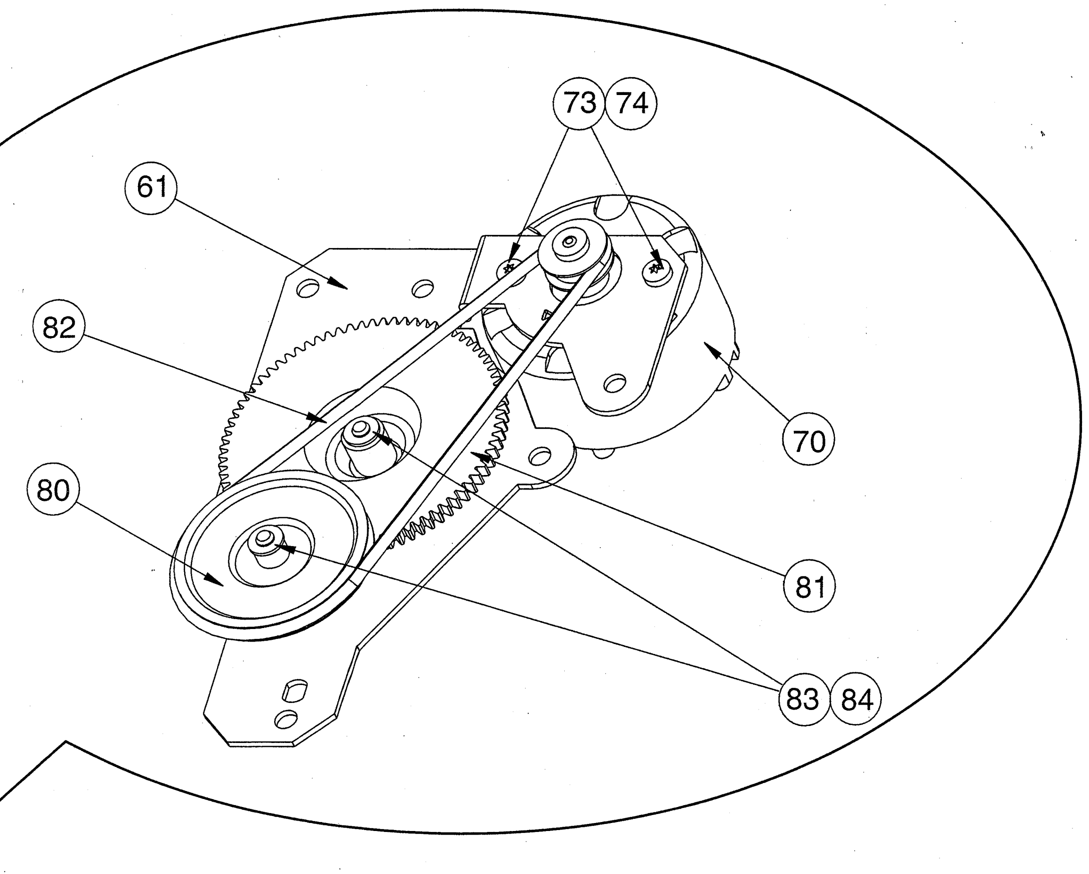

115
116
117
118

MECHANICAL PART

	4822 390 101
3	4822 463 110
4	4822 463 110
21	4822 441 116
22	4822 402 100
38	4822 502 125
39	4822 502 125
40	4822 463 110
41	4822 522 105
42	4822 522 104


73
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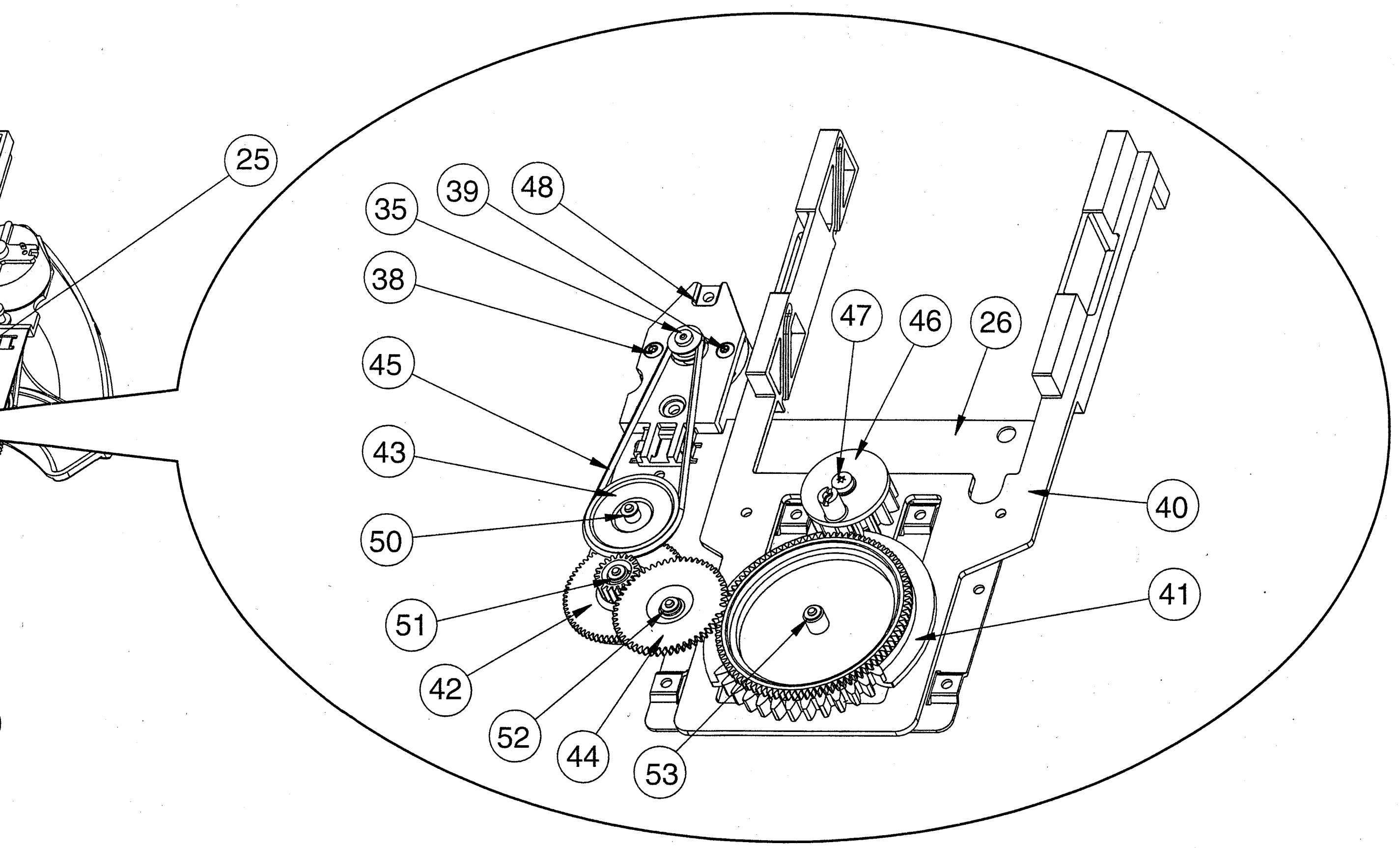
80
81
83
84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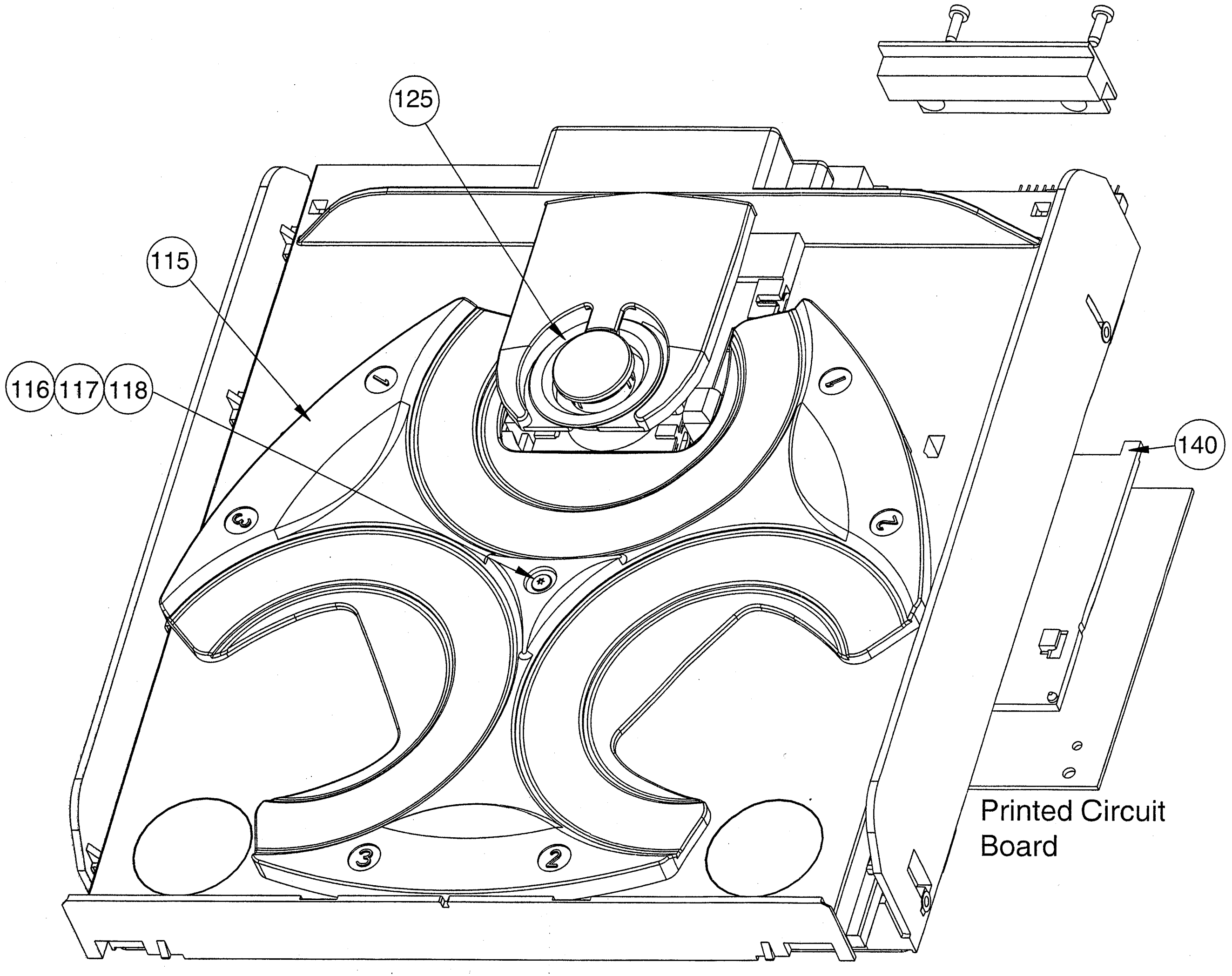
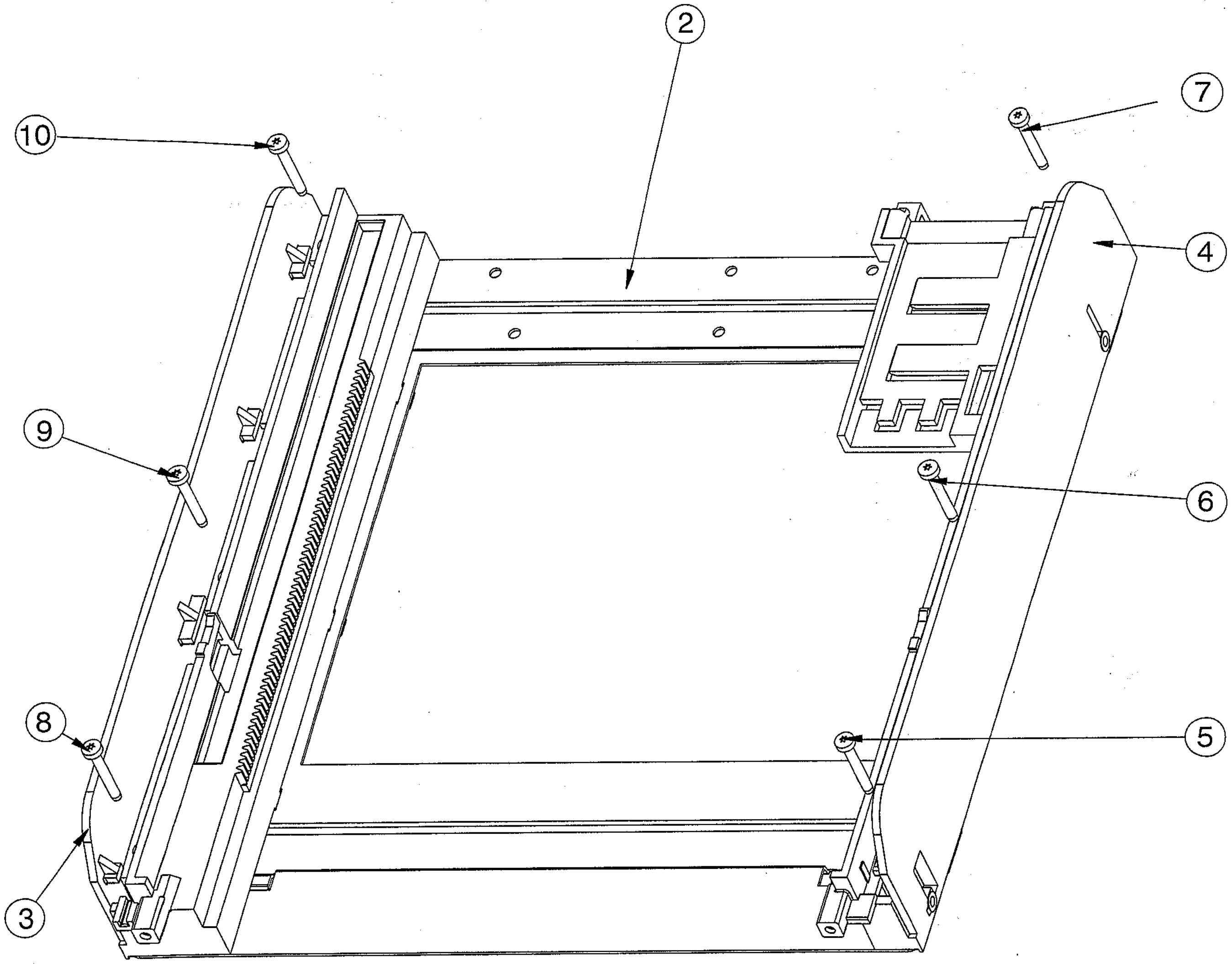

125
115
116
117
118
140
Printed Circuit Board

MECHANICAL PARTSLIST 3CDC MODULE

	4822 390 10136	POLYLUB GLY801 (GREASE)
3	4822 463 11008	GUIDE LEFT
4	4822 463 11009	GUIDE RIGHT
21	4822 441 11615	DRAWER
22	4822 402 10088	BRACKET TUMBLER
38	4822 502 12548	SCREW M2,6X3,5
39	4822 502 12548	SCREW M2,6X3,5
40	4822 463 11011	SLIDE
41	4822 522 10509	CONTROL DISC
42	4822 522 10492	GEAR WHEEL
43	4822 528 10937	PULLEY
44	4822 522 10493	IDLER WHEEL
45	4822 358 10115	BELT
46	4822 466 10735	ECCENTRIC GEAR WHEEL
50	4822 532 12364	WASHER
51	4822 532 12364	WASHER
52	4822 532 12364	WASHER
53	4822 532 12364	WASHER
35	4822 361 10753	CARROUSEL MOTOR
70	4822 361 10753	CARROUSEL MOTOR



MECHANICAL PARTSLIST 3CDC MODULE

73	4822 502 12548	SCREW M2,6X3,5
74	4822 502 12548	SCREW M2,6X3,5
80	4822 528 10937	PULLEY
81	4822 522 10494	GEAR DRAWER
82	4822 358 10115	BELT
83	4822 532 12364	WASHER
84	4822 532 12364	WASHER
95	4822 404 10894	SUPPORT
96	4822 325 50215	SUSPENSION
97	4822 325 50215	SUSPENSION
98	4822 325 50215	SUSPENSION
99	4822 325 50215	SUSPENSION
100	4822 691 10615	CD DRIVE VAM1201
115	4822 466 10736	CARROUSEL
117	4822 532 12365	BUSH DRAWER
120	4822 532 51756	GROMMET
121	4822 532 51756	GROMMET
123	4822 402 10085	SWITCH BRACKET
125	4822 401 11708	DISC CLAMP
140	4822 466 10734	PLATE

ELECTRICAL PARTSLIST 3CDC MODULE

MISCELLANEOUS

100	4822 691 10615	CD DRIVE VAM1201
1800	4822 267 51453	FLEX FOIL CONNECTOR 12P
1805	4822 265 10979	FLEX FOIL CONNECTOR 15P
1806	4822 265 10981	FLEX FOIL CONNECTOR 15P
1880	4822 276 13503	SWITCH
1881	4822 276 13503	SWITCH
1882	4822 276 13503	SWITCH

CAPACITORS

2800	4822 126 10053	180pF	10%	50V
2801	4822 122 10466	220pF	10%	50V
2802	4822 126 10053	180pF	10%	50V
2803	4822 122 10466	220pF	10%	50V
2804	4822 126 12787	330pF	10%	50V
2805	4822 122 10466	220pF	10%	50V
2806	4822 122 10466	220pF	10%	50V
2807	4822 126 12878	1,5nF	10%	16V
2808	4822 122 10466	220pF	10%	50V
2809	4822 126 12882	100nF	20%	50V
2810	4822 122 10459	560pF	10%	50V
2811	4822 122 10466	220pF	10%	50V
2812	4822 122 10319	82pF	5%	50V
2813	4822 122 10319	82pF	5%	50V
2814	4822 122 33849	150pF	10%	50V
2815	4822 122 33192	27pF	5%	50V
2817	4822 122 33849	150pF	10%	50V
2819	4822 122 33848	47pF	5%	50V
2820	4822 122 33848	47pF	5%	50V
2821	4822 122 10462	15pF	5%	50V
2822	4822 126 12339	2,2nF	10%	16V
2823	4822 122 33848	47pF	5%	50V
2824	4822 126 11585	22nF	20%	50V
2825	4822 126 12882	100nF	20%	50V
2826	4822 124 23624	470µF	20%	16V
2827	4822 126 12882	100nF	20%	50V
2828	4822 126 12882	100nF	20%	50V
2829	4822 124 41579	10µF	20%	50V
2830	4822 126 12882	100nF	20%	50V
2831	4822 124 41972	4,7µF	20%	50V
2832	4822 124 12032	4,7µF	20%	50V
2835	4822 126 12882	100nF	20%	50V
2837	4822 126 12882	100nF	20%	50V
2838	4822 126 12882	100nF	20%	50V
2839	4822 126 12882	100nF	20%	50V
2840	4822 126 12882	100nF	20%	50V
2841	4822 122 10574	1,2nF	10%	16V
2842	4822 121 51387	10nF	20%	16V
2843	4822 126 12882	100nF	20%	50V
2844	4822 122 10574	1,2nF	10%	16V
2845	4822 121 51387	10nF	20%	16V
2846	4822 126 11585	22nF	20%	50V
2847	4822 126 12882	100nF	20%	50V
2849	4822 126 11585	22nF	20%	50V
2850	4822 122 33197	1nF	10%	50V
2851	4822 126 12882	100nF	20%	50V
2852	4822 124 80857	470µF	20%	16V
2856	4822 122 33848	47pF	5%	50V
2859	4822 126 12882	100nF	20%	50V
2860	4822 124 41579	10µF	20%	50V
2861	4822 124 41579	10µF	20%	50V
2862	4822 126 12339	2,2nF	10%	16V
2863	4822 126 12339	2,2nF	10%	16V
2866	4822 126 12882	100nF	20%	50V
2867	4822 122 33848	47pF	5%	50V

CAPACITORS

2868	4822 126 12882	100nF	20%	50V
2869	4822 126 12882	100nF	20%	50V
2870	4822 126 12882	100nF	20%	50V
2871	4822 126 11585	22nF	20%	50V
2872	4822 126 12882	100nF	20%	50V
2873	4822 126 12882	100nF	20%	50V
2874	4822 126 11585	22nF	20%	50V
2875	4822 126 11585	22nF	20%	50V
2876	4822 124 80857	470µF	20%	16V
2877	4822 122 10319	82pF	5%	50V
2878	4822 122 10466	220pF	10%	50V
2879	4822 122 10466	220pF	10%	50V
2880	4822 121 51387	10nF	20%	16V
2884	4822 126 12882	100nF	20%	50V
2887	4822 126 12882	100nF	20%	50V
2891	4822 124 23179	10µF	20%	16V

RESISTORS

3703	4822 116 83883	470Ω	5%	0,16W
3720	4822 116 52176	10Ω	5%	0,5W
3721	4822 116 83883	470Ω	5%	0,5W
3725	4822 116 83864	10kΩ	5%	0,5W
3726	4822 116 83864	10kΩ	5%	0,5W
3800	4822 116 52239	120kΩ	5%	0,5W
3801	4822 116 83864	10kΩ	5%	0,5W
3802	4822 116 52239	120kΩ	5%	0,5W
3803	4822 116 83864	10kΩ	5%	0,5W
3804	4822 116 52291	56kΩ	5%	0,5W
3805	4822 116 83864	10kΩ	5%	0,5W
3806	4822 116 83864	10kΩ	5%	0,5W
3807	4822 116 83864	10kΩ	5%	0,5W
3808	4822 116 83864	10kΩ	5%	0,5W
3810	4822 050 11002	1kΩ	5%	0,2W
3812	4822 116 83884	47kΩ	5%	0,16W
3813	4822 116 83864	10kΩ	5%	0,5W
3816	4822 116 52269	3,3kΩ	5%	0,5W
3817	4822 116 83961	6,8kΩ	5%	0,16W
3818	4822 116 83864	10kΩ	5%	0,5W
3819	4822 116 83883	470Ω	5%	0,16W
3820	4822 116 52269	3,3kΩ	5%	0,5W
3821	4822 116 52269	3,3kΩ	5%	0,5W
3822	4822 116 52257	22kΩ	5%	0,5W
3823	4822 116 52269	3,3kΩ	5%	0,5W
3824	4822 116 52269	3,3kΩ	5%	0,5W
3825	4822 050 11002	1kΩ	5%	0,2W
3826	4822 116 52257	22kΩ	5%	0,5W
3827	4822 116 52278	390kΩ	5%	0,5W
3828	4822 116 52257	22kΩ	5%	0,5W
3830	4822 116 52235	1MΩ	5%	0,5W
3831	4822 116 52257	22kΩ	5%	0,5W
3832	4822 116 83883	470Ω	5%	0,16W
3833	4822 116 83864	10kΩ	5%	0,5W
3834	4822 116 52283	4,7kΩ	5%	0,5W
3837	4822 050 11002	1kΩ	5%	0,2W
3838	4822 050 11002	1kΩ	5%	0,2W
3839	4822 116 52245	150kΩ	5%	0,16W
3840	4822 116 52245	150kΩ	5%	0,16W
3841	4822 116 83961	6,8kΩ	5%	0,16W
3842	4822 116 83864	10kΩ	5%	0,5W
3843	4822 116 52303	8,2kΩ	5%	0,5W
3844	4822 116 83883	470Ω	5%	0,16W
3845	4822 116 83864	10kΩ	5%	0,5W
3846	4822 116 52303	8,2kΩ	5%	0,5W

ELECTRICAL PARTSLIST 3CDC MODULE

RESISTORS

3847	4822 116 83883	470Ω	5%	0,16W
3848	4822 116 52303	8,2kΩ	5%	0,5W
3849	4822 116 52303	8,2kΩ	5%	0,5W
3850	4822 116 83883	470Ω	5%	0,16W
3851	4822 052 10338	3,3Ω		NFR25
3852	4822 052 10338	3,3Ω		NFR25
3853	4822 052 10338	3,3Ω		NFR25
3856	4822 116 80176	1Ω	5%	0,5W
3857	4822 050 11002	1kΩ	5%	0,2W
3858	4822 116 52257	22kΩ	5%	0,5W
3859	4822 116 52257	22kΩ	5%	0,5W
3860	4822 116 83883	470Ω	5%	0,16W
3861	4822 116 83883	470Ω	5%	0,16W
3862	4822 116 52175	100Ω	5%	0,5W
3863	4822 116 52175	100Ω	5%	0,5W
3864	4822 116 52175	100Ω	5%	0,5W
3865	4822 116 83883	470Ω	5%	0,16W
3866	4822 116 83883	470Ω	5%	0,16W
3867	4822 116 52234	100kΩ	5%	0,5W
3869	4822 116 52175	100Ω	5%	0,5W
3870	4822 116 52226	560Ω	5%	0,5W
3871	4822 116 83864	10kΩ	5%	0,5W
3872	4822 116 83864	10kΩ	5%	0,5W
3873	4822 116 83883	470Ω	5%	0,16W
3874	4822 116 83864	10kΩ	5%	0,5W
3875	4822 116 83864	10kΩ	5%	0,5W
3876	4822 116 83874	220kΩ	5%	0,5W
3877	4822 116 83864	10kΩ	5%	0,5W
3878	4822 116 83864	10kΩ	5%	0,5W
3879	4822 116 83864	10kΩ	5%	0,5W
3880	4822 116 52219	330Ω	5%	0,5W
3881	4822 116 83864	10kΩ	5%	0,5W
3882	4822 116 83884	47kΩ	5%	0,16W
3883	4822 116 52234	100kΩ	5%	0,5W
3884	4822 116 52276	3,9kΩ	5%	0,5W
3885	4822 116 52234	100kΩ	5%	0,5W
3886	4822 116 83884	47kΩ	5%	0,16W
3887	4822 052 10221	220Ω	5%	
3888	4822 116 83864	10kΩ	5%	0,5W
3889	4822 116 83883	470Ω	5%	0,16W
3890	4822 116 83883	470Ω	5%	0,16W
3891	4822 116 52272	330kΩ	5%	0,5W
3893	4822 116 52257	22kΩ	5%	0,5W
3894	4822 116 52191	33Ω	5%	0,5W
3895	4822 116 52176	10Ω	5%	0,5W
3896	4822 116 83864	10kΩ	5%	0,5W
3897	4822 116 52226	560Ω	5%	0,5W
3898	4822 116 52226	560Ω	5%	0,5W
3899	4822 116 52213	180Ω	5%	0,5W

COILS

1810	4822 242 73557	CERAMIC RES. 8,46MHz

DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	4822 130 34233	BZX79-B5V1

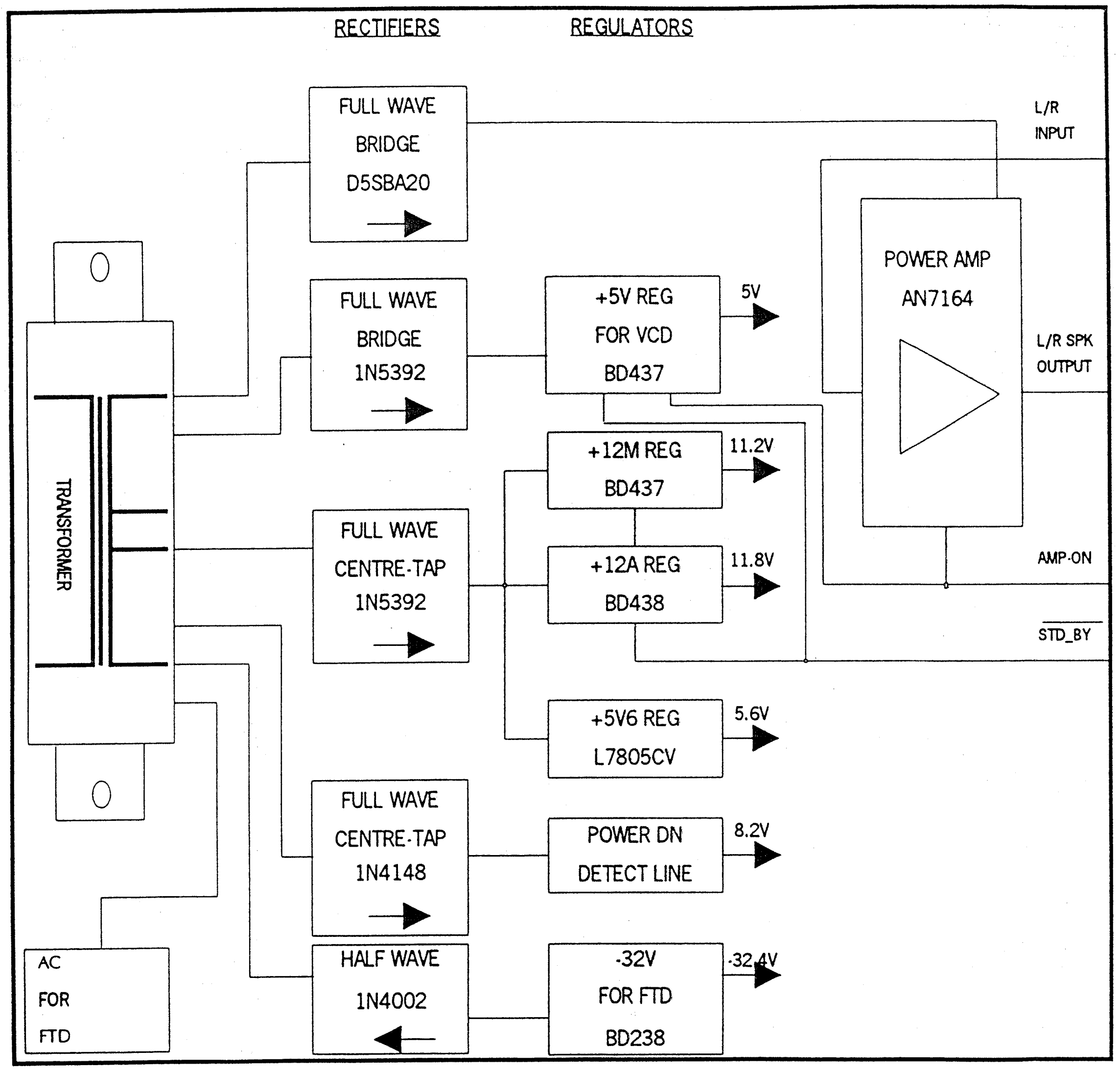
TRANSISTORS

7808	4822 130 41344	BC337-40
7874	4822 130 40959	BC547B
7875	4822 130 40959	BC547B

INTEGRATED CIRCUITS

7800©	4822 209 12752	SAA7378GP
7801©	5322 209 11517	PC74HCU04T
7806	4822 209 32852	TDA7073A/N2
7807	4822 209 32852	TDA7073A/N2
7851	4822 209 32421	TDA1311A/N2
7871	4822 209 32852	TDA7073A/N2
7873	5322 209 10421	HEF4094BP

POWER BOARD


RECTIFIERS
REGULATORS
FULL WAVE BRIDGE D5SBA20
FULL WAVE BRIDGE 1N5392
FULL WAVE CENTRE-TAP 1N5392
FULL WAVE CENTRE-TAP 1N4148
HALF WAVE 1N4002
TRANSFORMER
AC FOR FTD
+5V REG FOR VCD BD437
5V
+12M REG BD437
11.2V
+12A REG BD438
11.8V
+5V6 REG L7805CV
5.6V
POWER DN DETECT LINE
8.2V
-32V FOR FTD BD238
-32.4V
POWER AMP AN7164
L/R INPUT
L/R SPK OUTPUT
AMP-ON
STD_BY

WARNING : *If the power amplifier heatsink is not attached to the power amplifier during testing, do not make the amplifier deliver more than 500mW per channel. It is advisable to inject signal one channel at a time whenever possible and to remove all input signal immediately after test.*

CONNECTOR 12 TO 1210

o 1	PA	AC input to power amplifier rectifier
o 2	PA	AC input to power amplifier rectifier *[Note:Pin1 is shorted to Pin 2]*
o 3	PA	AC input to power amplifier rectifier
o 4	PA	AC input to power amplifier rectifier *[Note:Pin 3 is shorted to Pin 4]*
o 5	+12V/+5V6	AC input to +12V & +5V6 rectifier
o 6	GND	Centre-tap of secondary winding of Pin 5 ,7 and 8
o 7	+12V/+5V6	AC input to +12V & +5V6 rectifier
o 8	-35V	AC input to FTD rectifier
o 9	FTD	FTD filament voltage
o 10	FTD	FTD filament voltage

CONNECTOR 1222 FTD SUPPLY AND uP CONTROL SIGNALS

o 1	STDBY	Standby signal from microprocessor
o 2	~F1	AC voltage for FTD filament
o 3	~F2	AC voltage for FTD filament
o 4	-32V	-32.4V voltage for FTD grid
o 5	$\overline{\text{PWD DN}}$	Power down signal to microprocessor

CONNECTOR 1223 AF SIGNAL AND SUPPLY

o 1	L	Left input for power amplifier
o 2	⊥ a	AF ground
o 3	R	Right input for power amplifier
o 4	AMP_ON	Control from up to switch power amplifier and VCD regulator to standby
o 5	+12M	+12V for tapedeck motors and CD mechanisms
o 6	⊥ B	Ground for +12A
o 7	+12A	+12V for analog circuitries
o 8	⊥ D	Motor and Digital ground
o 9	+5V6	+5V6 for set uP and VCD uP

CONNECTOR 1224 AF SIGNAL AND SUPPLY *[OPTION]*

[Connections as 1223 but with digital ground and motor ground seperated]

o 1	L	Left input for power amplifier
o 2	⊥ a	AF ground
o 3	R	Right input for power amplifier
o 4	AMP_ON	Control from uP to switch power amplifier and VCD regulator to standby
o 5	+12A	+12V for analog circuitries
o 6	⊥ B	Ground for +12A
o 7	+12M	+12V for tapedeck motors and CD mechanisms
o 8	⊥ M	Motor ground
o 9	+5V6	+5V6 for set up and VCD up
o 10	⊥ D	Digital ground

CONNECTOR 1237 VCD SUPPLY *[OPTION]*

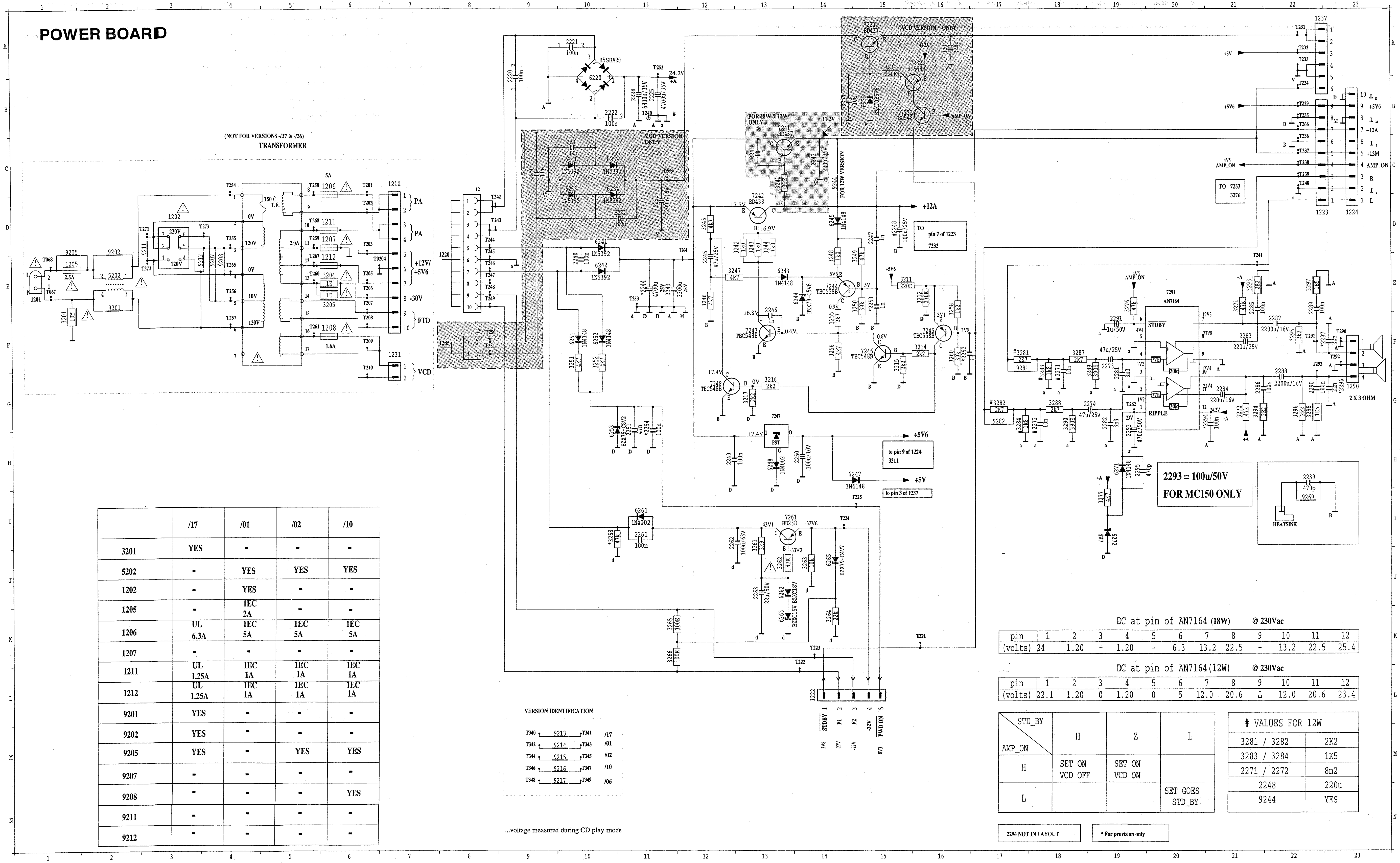
o 1	+VCD	+5V for VCD module
o 2	+VCD	+5V for VCD module
o 3	+Vsl	+5V for VCD uP-SRAM
o 4	GND	Ground
o 5	GND	Ground
o 6	+VA	+12V for VCD servo drivers

CONNECTOR 13 TO 1231 *[OPTION]*

o 1	VCD	AC input to VCD rectifier
o 2	VCD	AC input to VCD rectifier

Part	Location
12	C 8
1201	E 1
1202	D 3
1205	E 1
1206	C 6
1207	D 6
1208	F 6
1210	C 7
1211	D 6
1212	E 6
1222	L14
1223	D22
1224	D23
1231	F 7
1237	A22
1240	B11
1290	G23
13	F 8
2220	A 9
2221	A10
2222	B10
2224	B11
2225	B11
2230	C 9
2231	C10
2232	D11
2233	D11
2234	B14
2235	A16
2239	H22
2240	E10
2241	C13
2242	C14
2243	E11
2244	E11
2245	E12
2246	E13
2247	D15
2248	D15
2249	H12
2250	H14
2251	G11
2252	F16
2253	E15
2254	G11
2261	I11
2262	I12
2263	J13
2271	F18
2272	G18
2273	F19
2274	G19
2281	G19
2282	G19
2283	F21
2284	G21
2285	E21
2286	G21
2287	F22
2288	G22
2289	E22
2290	G22
2291	F19
2293	G19
2294	G21
2295	H19
3201	F 1
3204	E 6
3211	E15
3212	E16
3214	F16
3215	F15
3216	G13
3217	G13
3231	A15
3241	C13
3242	D13
3243	D13
3244	D13
3245	D12
3246	E12
3247	E12
3248	E14
3249	E15
3250	E15
3251	F10
3252	F10
3255	F14
3256	F14
3258	E16
3260	F16
3261	I13
3262	J13
3263	J14
3264	K14
3265	K11
3266	K11
3268	I10
3271	E21
3272	G21
3276	E19
3277	I19
3281	F17
3282	G17
3283	F18
3284	G17
3287	F18
3288	G18
3289	F19
3290	G18
3293	E21
3294	G21
3295	F22
3296	G22
3297	E22
3298	G22
5202	E 2
6220	A10
6231	C10
6232	C10
6233	C10
6234	C10
6235	B15
6241	D10
6242	E10
6243	E13
6244	E14
6245	D14
6247	H15
6248	H13
6251	F10
6252	F10
6253	H10
6261	I11
6262	J13
6263	K13
6265	J14
6271	H19
6272	I19
7231	A15
7232	A15
7233	B16
7241	B13
7242	D13
7243	F13
7244	E14
7245	F16
7246	F15
7247	G13
7248	G12
7261	I13
7291	E20
9201	E 2
9202	D 2
9205	D 1
9207	E 4
9208	E 4
9211	D 3
9212	E 4
9213	M10
9214	M10
9215	M10
9216	M10
9217	M10
9244	C14
9269	I22
9281	F17
9282	G17

POWER BOARD


(NOT FOR VERSIONS -/37 & -/26)
TRANSFORMER
230V
120V
150 C T.F.
5A
PA
+12V/ +5V6
-30V
FTD
VCD
1201
1202
1205
1206
1207
1208
1210
1211
1212
1220
1231
1235
BS5BA20
VCD VERSION ONLY
FOR 18W & 12W* ONLY
FOR 12W VERSION
+12A
+5V6
+5V
TO pin 7 of 1223 7232
to pin 9 of 1224 3211
to pin 3 of 1237
TO 7233 3276
AN7164
STDBY
RIPPLE
AMP_ON
2293 = 100u/50V FOR MC150 ONLY
HEATSINK
2 X 3 OHM
1237
1223
1224
1222
STDBY
F1
F2
-32V
PWD ON

	/17	/01	/02	/10
3201	YES	-	-	-
5202	-	YES	YES	YES
1202	-	YES	-	-
1205	-	1EC 2A	-	-
1206	UL 6.3A	1EC 5A	1EC 5A	1EC 5A
1207	-	-	-	-
1211	UL 1.25A	1EC 1A	1EC 1A	1EC 1A
1212	UL 1.25A	1EC 1A	1EC 1A	1EC 1A
9201	YES	-	-	-
9202	YES	-	-	-
9205	YES	-	YES	YES
9207	-	-	-	-
9208	-	-	-	YES
9211	-	-	-	-
9212	-	-	-	-

VERSION IDENTIFICATION

T340 9213 T341 /17
T342 9214 T343 /01
T344 9215 T345 /02
T346 9216 T347 /10
T348 9217 T349 /06

...voltage measured during CD play mode

DC at pin of AN7164 (18W) @ 230Vac

pin	1	2	3	4	5	6	7	8	9	10	11	12
(volts)	24	1.20	-	1.20	-	6.3	13.2	22.5	-	13.2	22.5	25.4

DC at pin of AN7164(12W) @ 230Vac

pin	1	2	3	4	5	6	7	8	9	10	11	12
(volts)	22.1	1.20	0	1.20	0	5	12.0	20.6	⊥	12.0	20.6	23.4

AMP_ON \ STD_BY	H	Z	L
H	SET ON VCD OFF	SET ON VCD ON	
L			SET GOES STD_BY

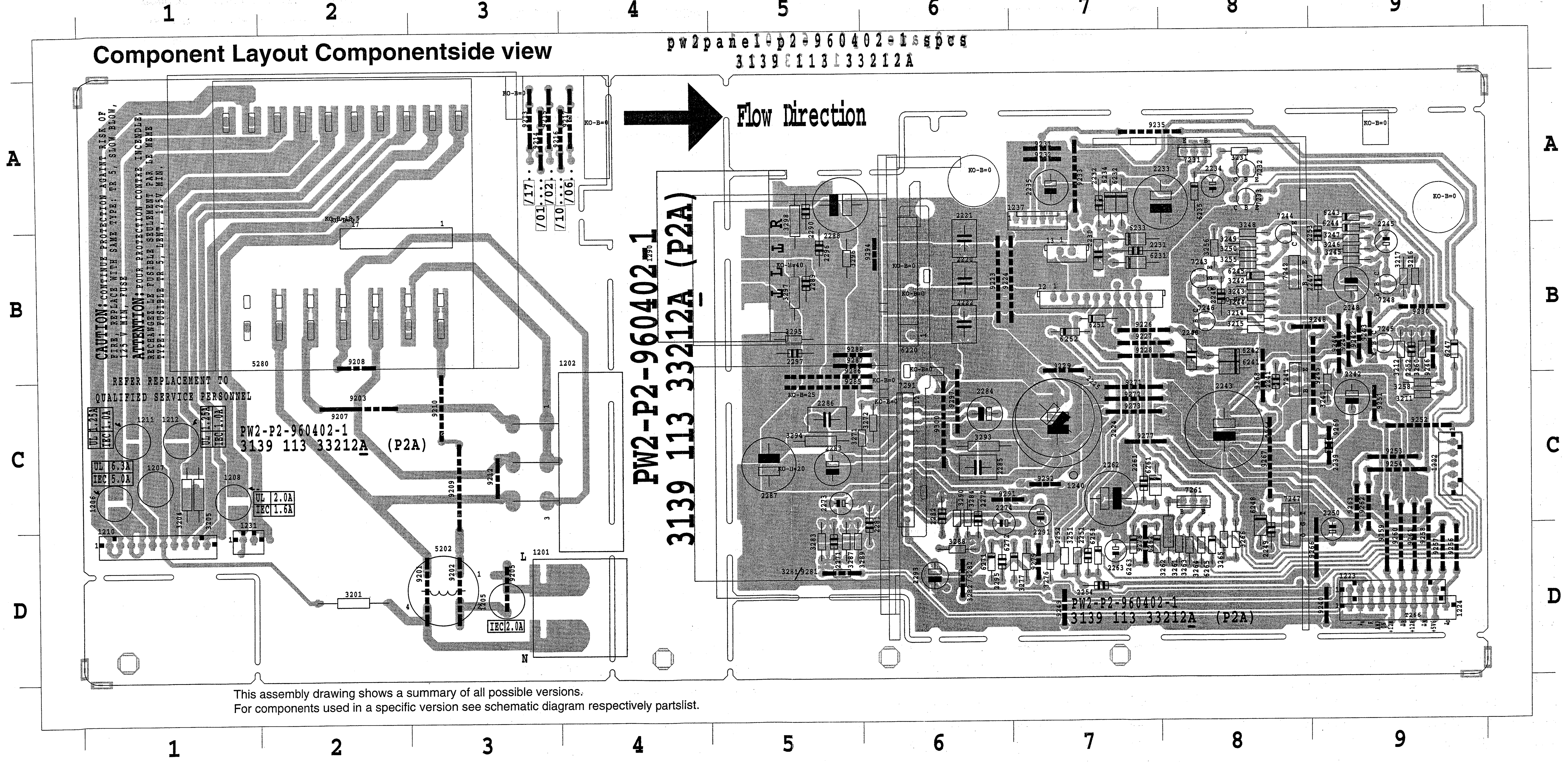
# VALUES FOR 12W	
3281 / 3282	2K2
3283 / 3284	1K5
2271 / 2272	8n2
2248	220u
9244	YES

2294 NOT IN LAYOUT

* For provision only

12 B 7	1211 C 1	2220 B 6	2234 A 8	2246 B 8	2261 C 7	2283 C 5	2293 D 6	3214 B 8	3245 B 9	3256 B 8	3271 C 5	3288 D 6	5202 D 3	6242 B 8	6261 C 7	7241 C 8	7291 C 6	9212 C 3	9227 B 7	9241 B 9	9252 C 9	9262 C 9	9277 C 7	9291 C 6
13 B 7	1212 C 1	2221 B 6	2235 A 7	2247 B 9	2262 C 7	2284 C 6	2295 D 6	3215 B 8	3246 B 9	3258 C 9	3272 C 6	3289 D 5	5280 B 2	6243 A 9	6262 D 7	7242 B 8	9201 D 3	9213 A 3	9228 B 7	9242 B 9	9253 C 9	9263 C 9	9278 D 7	9292 C 7
1201 D 4	1222 C 9	2222 B 6	2239 C 9	2248 B 9	2263 D 7	2285 C 6	2296 B 5	3216 B 9	3247 B 9	3260 B 9	3276 D 7	3290 C 6	6220 B 6	6244 B 9	6263 D 7	7243 B 8	9202 D 3	9214 A 3	9229 B 7	9243 B 9	9254 C 9	9266 D 9	9279 D 7	9294 B 6
1202 C 3	1223 D 9	2224 C 7	2240 B 8	2249 D 8	2271 D 5	2286 C 5	2297 B 5	3217 B 9	3248 B 8	3261 D 8	3277 D 7	3293 C 6	6231 B 7	6245 B 8	6265 D 8	7244 B 8	9203 C 2	9215 A 3	9230 B 9	9244 B 9	9256 D 9	9267 C 8	9281 D 5	9297 C 6
1205 D 3	1224 D 9	2225 C 7	2241 C 8	2250 D 9	2272 C 6	2287 C 5	3201 D 2	3231 A 8	3249 B 8	3262 D 8	3281 D 5	3294 C 5	6232 A 7	6247 B 9	6271 D 6	7245 B 9	9205 D 3	9216 A 4	9231 A 7	9245 C 9	9257 D 9	9268 C 8	9282 D 6	9300 C 6
1206 C 1	1231 D 1	2230 B 7	2242 C 9	2251 D 7	2273 C 5	2288 A 5	3204 C 1	3241 C 9	3250 B 8	3263 D 8	3282 D 6	3295 B 5	6233 B 7	6248 D 8	6272 D 7	7246 B 8	9207 C 2	9217 A 4	9232 A 7	9246 B 9	9258 D 9	9269 C 9	9285 C 5	
1207 C 1	1237 A 7	2231 B 7	2243 C 8	2252 B 9	2274 C 6	2289 B 5	3205 C 1	3242 B 8	3251 D 7	3264 D 8	3283 D 5	3296 B 5	6234 A 7	6251 B 7	7231 A 8	7247 D 8	9208 B 2	9223 B 6	9233 A 7	9248 B 8	9259 D 9	9271 C 7	9286 C 5	
1208 C 1	1240 C 7	2232 A 7	2244 C 8	2253 B 9	2281 C 6	2290 A 5	3211 C 9	3243 B 8	3252 D 7	3265 D 8	3284 C 6	3297 B 5	6235 A 8	6252 B 7	7232 A 8	7248 B 9	9209 C 3	9224 B 6	9235 A 7	9249 D 7	9260 D 9	9272 C 7	9287 B 5	
1210 D 1	1290 B 5	2233 A 8	2245 B 9	2254 D 7	2282 C 6	2291 C 7	3212 B 9	3244 B 8	3255 B 8	3266 D 8	3287 D 5	3298 A 5	6241 B 8	6253 D 7	7233 A 8	7261 C 8	9210 C 3	9226 B 7	9240 D 9	9251 C 9	9261 D 9	9273 C 7	9288 B 5	

Component Layout Componentside view


1
2
3
4
5
6
7
8
9
A
B
C
D
pw2panel-p2-960402-1sspcs
3139 113 33212A
Flow Direction
CAUTION: CONTINUE PROTECTION AGAINST RISK OF FIRE, REPLACE WITH SAME TYPE: TR 5, SLOW BLOW, 125 V MIN. FUSE
ATTENTION: POUR PROTECTION CONTRE INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR LE MEME TYPE: FUSIBLE TR 5, LENT, 125V MIN.
REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL
UL 1.25A
IEC 1.0A
UL 6.3A
IEC 5.0A
UL 2.0A
IEC 1.6A
IEC 2.0A
PW2-P2-960402-1
3139 113 33212A (P2A)
KO-B=0
L
N
1201
1202
1211
1212
1207
1208
1206
1210
1231
5202
5280
3201
9201
9202
9203
9205
9207
9208
9209
9210
1237
1240
1223
1224
2233
2243
2284
2287
2262
7231
7261
9235

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

MISCELLANEOUS

21	4822 492 63051	Spring
22	4822 492 71734	Spring
24	4822 492 11084	Spring
1201	4822 265 31015	Connector
1201	4822 265 31016	Connector -/37
1202	4822 272 10269	Mains Switch -/21/21M
1205	4822 071 52002	Fuse 2A -/21/21M
1206	4822 071 55002	Fuse 5A
1211	4822 071 51002	Fuse 1A
1212	4822 071 51002	Fuse 1A
1206	4822 252 51123	Fuse 6.3A -/37
1211	4822 253 30334	Fuse 1.25A -/37
1212	4822 253 30334	Fuse 1.25A -/37

CAPACITORS

2220	5322 121 42386	100nF 5% 63V
2221	5322 121 42386	100nF 5% 63V
2222	5322 121 42386	100nF 5% 63V
2224	4822 124 11516	680µF 20% 35V
2239	4822 122 33519	470pF 10% 50V
2240	5322 121 42386	100nF 5% 63V
2241	4822 122 33197	1nF 10% 50V
2242	4822 124 22263	220µF 20% 25V
2243	4822 124 42057	3300µF 20% 25V
2245	4822 124 40433	47µF 20% 25V
2246	4822 122 33197	1nF 10% 50V
2247	4822 122 33197	1nF 10% 50V
2248	4822 124 41525	100µF 20% 25V
2249	4822 126 12882	100nF +80-20% 50V
2250	4822 124 41584	100µF 20% 10V
2251	4822 126 12785	47nF TUB 50V
2254	4822 126 12882	100nF +80-20% 50V
2261	4822 126 12882	100nF +80-20% 50V
2262	4822 124 40255	100µF 20% 63V
2263	4822 124 41596	22µF 20% 50V
2271	4822 121 51387	10nF 20% 16V
2272	4822 121 51387	10nF 20% 16V
2273	4822 124 40433	47µF 20% 25V
2274	4822 124 40433	47µF 20% 25V
2281	4822 122 10577	3.3nF 10% 16V
2282	4822 122 10577	3.3nF 10% 16V
2283	4822 124 22263	220µF 20% 25V
2284	4822 124 22263	220µF 20% 25V
2285	5322 121 42386	100nF 5% 63V
2286	5322 121 42386	100nF 5% 63V

CAPACITORS

2287	4822 124 80148	2200µF 20% 16V
2288	4822 124 80148	2200µF 20% 16V
2289	4822 126 12882	100nF +80-20% 50V
2292	4822 122 33197	1nF 10% 50V
2290	4822 126 12882	100nF +80-20% 50V
2291	4822 124 40242	1µF 20% 63V
2293	4822 124 41334	470µF 20% 63V
2295	4822 122 33519	470pF 10% 50V
2296	4822 121 51387	10nF 20% 16V
2297	4822 121 51387	10nF 20% 16V

RESISTORS

3201	4822 053 21106	10M 5% 0.5W
3204	4822 052 10108	1Ω 5% 0.33W
3211	4822 116 83872	220Ω 5% 0.5W
3212	4822 116 52217	270Ω 5% 0.5W
3214	4822 116 52256	2k2 5% 0.5W
3215	4822 116 52256	2k2 5% 0.5W
3216	4822 116 52256	2k2 5% 0.5W
3217	4822 116 52256	2k2 5% 0.5W
3241	4822 116 52186	22Ω 5% 0.5W
3242	4822 050 11002	1k 1% 0.4W
3243	4822 050 11002	1k 1% 0.4W
3244	4822 050 11002	1k 1% 0.4W
3245	4822 116 52283	4k7 5% 0.5W
3246	4822 116 52283	4k7 5% 0.5W
3247	4822 116 52283	4k7 5% 0.5W
3248	4822 050 11002	1k 1% 0.4W
3249	4822 116 52284	47k 5% 0.5W
3250	4822 116 83882	39k 5% 0.5W
3251	4822 116 52283	4k7 5% 0.5W
3252	4822 116 52283	4k7 5% 0.5W
3255	4822 116 52263	2k7 5% 0.5W
3256	4822 116 52283	4k7 5% 0.5W
3258	4822 116 52207	1k2 5% 0.5W
3260	4822 116 83882	39k 5% 0.5W
3261	4822 116 52276	3k9 5% 0.5W
3262	4822 052 10479	47Ω 5% 0.33W
3263	4822 116 83864	10k 5% 0.5W
3264	4822 116 52257	22k 5% 0.5W
3265	4822 052 10479	47Ω 5% 0.33W
3266	4822 052 10479	47Ω 5% 0.33W

RESISTORS

3271	4822 116 52284	47k 5% 0.5W
3272	4822 116 52284	47k 5% 0.5W
3276	4822 116 52284	47k 5% 0.5W
3277	4822 116 52283	4k7 5% 0.5W
3281	4822 116 52263	2k7 5% 0.5W
3282	4822 116 52263	2k7 5% 0.5W
3283	4822 116 52249	1k8 5% 0.5W
3284	4822 116 52249	1k8 5% 0.5W
3287	4822 116 52263	2k7 5% 0.5W
3288	4822 116 52263	2k7 5% 0.5W
3289	4822 116 52222	390Ω 5% 0.5W
3290	4822 116 52222	390Ω 5% 0.5W
3293	4822 052 10228	2Ω2 5% 0.33W
3294	4822 052 10228	2Ω2 5% 0.33W
3295	4822 116 52256	2k2 5% 0.5W
3296	4822 116 52256	2k2 5% 0.5W
3297	4822 117 12148	1Ω5 5% 330mW
3298	4822 117 12148	1Ω5 5% 330mW

COILS

5202	4822 157 71285	Coil 400µH 30% (Not for -/37)

DIODES

6220	4822 130 82078	Diode Bridge D5SBA20
6241	5322 130 80686	1N5392
6242	5322 130 80686	1N5392
6243	4822 130 30621	1N4148
6244	4822 130 34173	BZX79-C5V6
6245	4822 130 34173	BZX79-C5V6
6247	4822 130 30621	1N4148
6248	5322 130 30684	1N4002
6251	4822 130 30621	1N4148
6252	4822 130 30621	1N4148
6253	4822 130 34382	BZX79-C8V2
6261	5322 130 30684	1N4002
6262	4822 130 31024	BZX79-C18
6263	4822 130 34281	BZX79-C15
6265	4822 130 34174	BZX79-C4V7
6271	4822 130 30621	1N4148
6272	4822 130 34174	BZX79-C4V7

TRANSISTORS

7241	4822 130 40982	BD437
7242	4822 130 40995	BD438
7243	4822 130 40937	BC548B
7244	4822 130 44197	BC558B
7245	4822 130 44197	BC558B
7246	4822 130 40937	BC548B
7247	4822 209 80817	L7805CV
7248	4822 130 40937	BC548B
7261	4822 130 40917	BD238
7291	4822 209 90411	AN7164

AF2 BOARD

NOTES

BRIEF INTRODUCTION OF PCBAS AF-2:

The AF2 board consists of the following :

a. SOFAC IC which includes functions such as source selection, loudness control, bass control, treble control, front/rear volume control and muting function. All function are controllable via I^2C data from the master microprocessor.

The SOFAC IC caters for 4 input sources, namely tuner, tape, CD and AUX.

b. Karaoke Mic. Mixing. (not applicable for MC150/MC170)
NK : Non Karaoke
SK : Simple Karaoke which caters for mic. mixing with additional mic. amp. board.
FK : Full Karaoke with vocal fader and echo effect with additional Karaoke board.

c. Incredible Sound using IC LM324DT quad Op-Amp to create phase shifting and spatial effect.

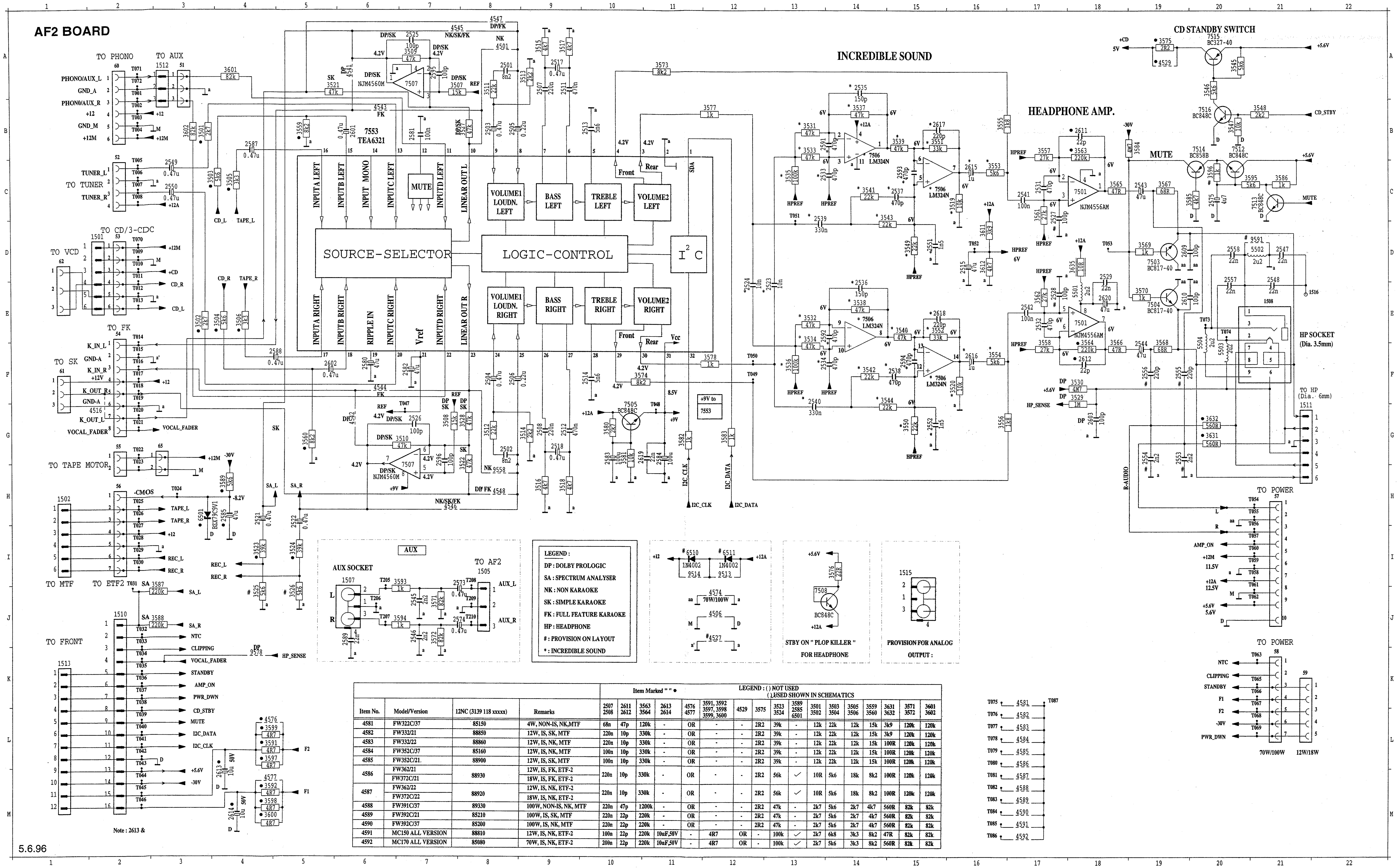
d. Headphone Amplifier using Op-Amp . NJM4556M.

e. CD standby control circuit which switches on the CD servo supply in CD mode only.

f. Headphone Sensing circuit to mute speaker for Dolby Prologic application.

f. Attenuation network is provided at the output of the AF2 board for interfacing with power board of different output power.

1501	D 2
1502	H 1
1505	I 8
1507	I 6
1508	E21
1510	J 2
1511	G21
1512	A 3
1513	K 1
1515	I15
1516	E21
2501	A 8
2502	G 8
2503	B 8
2504	F 8
2505	B 8
2506	F 8
2507	A 9
2508	G 9
2511	A 9
2512	G 9
2513	B10
2514	F10
2515	D16
2517	A 9
2518	G 9
2521	H 4
2522	H 5
2523	E13
2524	E12
2525	A 7
2526	G 7
2527	C17
2528	E17
2529	D18
2531	C17
2532	E17
2533	C13
2534	F13
2535	A14
2536	E14
2537	C15
2538	F15
2539	C13
2540	F13
2541	C17
2542	E17
2543	C19
2544	F19
2545	J 7
2546	J 7
2547	D21
2548	D21
2549	C 3
2550	C 3
2551	D15
2552	G15
2553	G19
2554	G19
2555	F19
2556	F19
2557	D20
2558	D20
2573	I 7
2574	J 7
2575	C20
2580	F 6
2581	B 7
2582	F 7
2583	G10
2584	G11
2585	H 4
2587	B 4
2588	F 4
2589	J 6
2591	B13
2592	E13
2593	C15
2594	F15
2595	A 7
2596	G 7
2601	B 6
2602	F 5
2603	G18
2609	D19
2610	E19
2611	B18
2612	F18
2613	M 4
2614	M 4
2615	C16
2616	F16
2617	B15
2618	E15
2619	G10
2620	E18
3501	B 3
3502	E 3
3503	C 3
3504	E 4
3505	C 4
3506	E 4
3507	A 7
3508	G 7
3509	A 7
3510	G 7
3511	A 8
3512	G 8
3513	A 9
3514	G 9
3515	A 9
3516	H 9
3517	A 9
3518	H 9
3519	C16
3520	F16
3521	A 5
3522	G 8
3523	I 4
3524	I 5
3525	J 4
3526	J 5
3527	B 8
3528	G 8
3529	F18
3530	F18
3531	B13
3532	E13
3533	B13
3534	E13
3535	C13
3536	F13
3537	B14
3538	E14
3539	B15
3540	E15
3541	C14
3542	F14
3543	C14
3544	F14
3545	A20
3546	A20
3547	B20
3548	B21
3549	D15
3550	G15
3551	B15
3552	E15
3553	C16
3554	F16
3555	B16
3556	G16
3557	B17
3558	F17
3559	B 5
3560	G 5
3561	C17
3562	E17
3563	B18
3564	F18
3565	C18
3566	F18
3567	C19
3568	F19
3569	D19
3570	E19
3571	J 7
3572	J 7
3573	A11
3574	F10
3575	A19
3576	I14
3577	B12
3578	F12
3580	G10
3581	G10
3582	G11
3583	G12
3584	B19
3585	C20
3586	C21
3587	J 3
3588	J 3
3589	H 4
3591	L 4
3592	M 4
3593	I 7
3594	J 7
3595	C21
3596	C20
3597	L 4
3598	M 4
3599	L 4
3600	M 4
3601	A 4
3602	B 3
3611	D16
3612	D16
3631	G20
3632	G20
3635	D18
4501	A 8
4506	J12
4516	G 2
4527	J12
4529	A19
4541	A 6
4542	G 6
4543	B 6
4544	F 6
4545	A 7
4546	H 7
4547	A 8
4548	H 8
4574	J12
4576	L 4
4577	M 4
4581	K17
4582	L17
4583	L17
4584	L17
4585	L17
4586	L17
4587	M17
4588	M17
4589	M17
4590	M17
4591	M17
4592	M17
51	A 3
52	B 2
53	D 2
54	E 2
55	G 2
5501	E18
5502	D21
5503	F20
5504	E20
56	H 2
57	H21
58	K21
59	K21
60	A 2
61	F 1
62	D 1
65	G 3
6501	H 3
6510	I11
6511	I12
7501	C18
7501	E18
7503	D19
7504	E19
7505	G10
7506	B14
7506	C15
7506	E14
7506	F15
7507	A 7
7507	H 7
7508	J14
7512	B20
7513	C21
7514	B20
7515	A20
7516	B20
7553	B 6
9513	I12
9514	I11
9558	H 8
9578	K 4
9591	D21

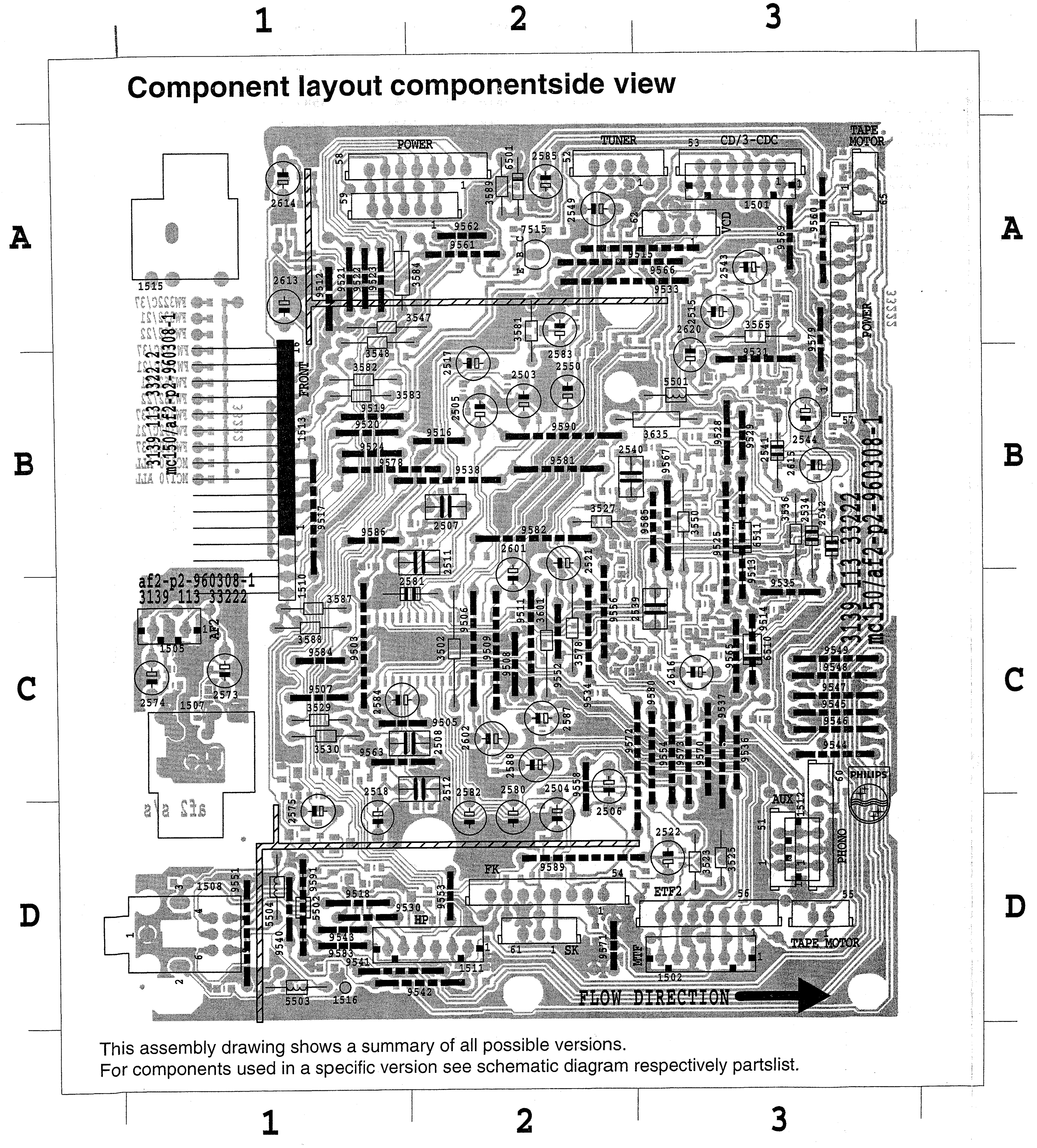

AF2 BOARD
TO PHONO
TO AUX
PHONO/AUX_L
GND_A
PHONO/AUX_R
GND_M
TUNER_L
TO TUNER
TUNER_R
TO CD/3-CDC
TO VCD
TO FK
TO SK
K_IN_L
K_IN_R
K_OUT_L
VOCAL_FADER
TO TAPE MOTOR
TO MTF
TO ETF2
TO FRONT
7553
TEA6321
INPUTA LEFT
INPUTB LEFT
INPUT MONO
INPUTC LEFT
MUTE
INPUTD LEFT
LINEAR OUT L
SOURCE-SELECTOR
LOGIC-CONTROL
I2C
VOLUME1 LOUDN. LEFT
BASS LEFT
TREBLE LEFT
VOLUME2 LEFT
VOLUME1 LOUDN. RIGHT
BASS RIGHT
TREBLE RIGHT
VOLUME2 RIGHT
INPUTA RIGHT
INPUTB RIGHT
RIPPLE IN
INPUTC RIGHT
Vref
INPUTD RIGHT
LINEAR OUT R
Front
Rear
NJM4560M
INCREDIBLE SOUND
LM324N
HEADPHONE AMP.
NJM4556AM
CD STANDBY SWITCH
BC327-40
BC848C
BC858B
MUTE
BC817-40
HP SOCKET (Dia. 3.5mm)
TO HP (Dia. 6mm)
TO POWER
I2C_CLK
I2C_DATA
AUX
AUX SOCKET
TO AF2
STBY ON " PLOP KILLER " FOR HEADPHONE
PROVISION FOR ANALOG OUTPUT :
70W/100W
12W/18W
Note : 2613 &
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
A B C D E F G H I J K L M

LEGEND :
DP : DOLBY PROLOGIC
SA : SPECTRUM ANALYSER
NK : NON KARAOKE
SK : SIMPLE KARAOKE
FK : FULL FEATURE KARAOKE
HP : HEADPHONE
: PROVISION ON LAYOUT
* : INCREDIBLE SOUND

				Item Marked " " ●				LEGEND : ( ) NOT USED (✓) USED SHOWN IN SCHEMATICS												
Item No.	Model/Version	12NC (3139 118 xxxxx)	Remarks	2507 2508	2611 2612	3563 3564	2613 2614	4576 4577	3591, 3592 3597, 3598 3599, 3600	4529	3575	3523 3524	3589 2585 6501	3501 3502	3503 3504	3505 3506	3559 3560	3631 3632	3571 3572	3601 3602
4581	FW322C/37	85150	4W, NON-IS, NK,MTF	68n	47p	120k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	3k9	120k	120k
4582	FW332/21	88850	12W, IS, SK, MTF	220n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	3k9	120k	120k
4583	FW332/22	88860	12W, IS, NK, MTF	220n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	120k
4584	FW352C/37	85160	12W, IS, NK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	120k
4585	FW352C/21.	88900	12W, IS, SK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	120k
4586	FW362/21	88930	12W, IS, FK, ETF-2	220n	10p	330k	-	OR	-	-	2R2	56k	✓	10R	5k6	18k	8k2	100R	120k	120k
	FW372C/21		18W, IS, FK, ETF-2																	
4587	FW362/22	88920	12W, IS, NK, ETF-2	220n	10p	330k	-	OR	-	-	2R2	56k	✓	10R	5k6	18k	8k2	100R	120k	120k
	FW372C/22		18W, IS, NK, ETF-2																	
4588	FW391C/37	89330	100W, NON-IS, NK, MTF	220n	47p	1200k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4589	FW392C/21	85210	100W, IS, SK, MTF	220n	22p	220k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4590	FW392C/37	85200	100W, IS, NK, MTF	220n	22p	220k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4591	MC150 ALL VERSION	88810	12W, IS, NK, ETF-2	100n	22p	220k	10uF,50V	-	4R7	OR	-	100k	✓	2k7	6k8	3k3	8k2	47R	82k	82k
4592	MC170 ALL VERSION	85080	70W, IS, NK, ETF-2	200n	22p	220k	10uF,50V	-	4R7	OR	-	100k	✓	2k7	5k6	3k3	8k2	560R	82k	82k

5.6.96

Component layout componentside view



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

51	D	3	2602	C	2	9530	D	1
52	A	2	2613	A	1	9531	B	3
53	A	3	2614	A	1	9533	A	2
54	D	2	2615	B	3	9534	C	2
55	D	3	2616	C	3	9535	C	3
56	D	3	2620	B	3	9536	C	3
57	A	3	3502	C	2	9537	C	3
58	A	2	3523	D	3	9538	B	2
59	A	1	3525	D	3	9540	D	1
60	D	3	3527	B	2	9541	D	1
61	D	2	3529	C	1	9542	D	2
62	A	3	3530	C	1	9543	D	1
65	A	3	3536	B	3	9544	C	3
1501	A	3	3547	A	1	9545	C	3
1502	D	3	3548	A	1	9546	C	3
1505	C	1	3550	B	3	9547	C	3
1507	C	1	3565	A	3	9548	C	3
1508	D	1	3578	C	2	9549	C	3
1510	B	1	3581	A	2	9551	D	1
1511	D	2	3582	B	1	9552	C	2
1512	D	3	3583	B	1	9553	D	2
1513	B	1	3584	A	1	9554	C	3
1515	A	1	3587	C	1	9556	C	2
1516	D	1	3588	C	1	9558	C	2
2503	B	2	3589	A	2	9560	A	3
2504	D	2	3601	C	2	9561	A	2
2505	B	2	3635	B	3	9562	A	2
2506	C	2	5501	B	3	9563	C	1
2507	B	2	5502	D	1	9565	C	3
2508	C	1	5503	D	1	9566	A	2
2511	B	2	5504	D	1	9567	B	3
2512	C	2	6501	A	2	9569	A	3
2515	A	3	6510	C	3	9570	C	3
2517	B	2	6511	B	3	9571	D	2
2518	D	1	7515	A	2	9572	C	2
2521	B	2	9503	C	1	9573	C	3
2522	D	3	9505	C	1	9578	B	1
2534	B	3	9506	C	2	9579	A	3
2539	C	3	9507	C	1	9580	C	3
2540	B	2	9508	C	2	9581	B	2
2541	B	3	9509	C	2	9582	B	2
2542	B	3	9511	C	2	9583	D	1
2543	A	3	9512	A	1	9584	C	1
2544	B	3	9513	B	3	9585	B	3
2549	A	2	9514	C	3	9586	B	1
2550	B	2	9515	A	3	9589	D	2
2573	C	1	9516	B	2	9590	B	2
2574	C	1	9517	B	1	9591	D	1
2575	D	1	9518	D	1			
2580	D	2	9519	B	1			
2581	C	1	9520	B	1			
2582	D	2	9521	A	1			
2583	A	2	9522	A	1			
2584	C	1	9523	A	1			
2585	A	2	9524	B	1			
2587	C	2	9525	B	3			
2588	C	2	9528	B	3			
2601	C	2	9529	B	3			

Voltage Assignments:

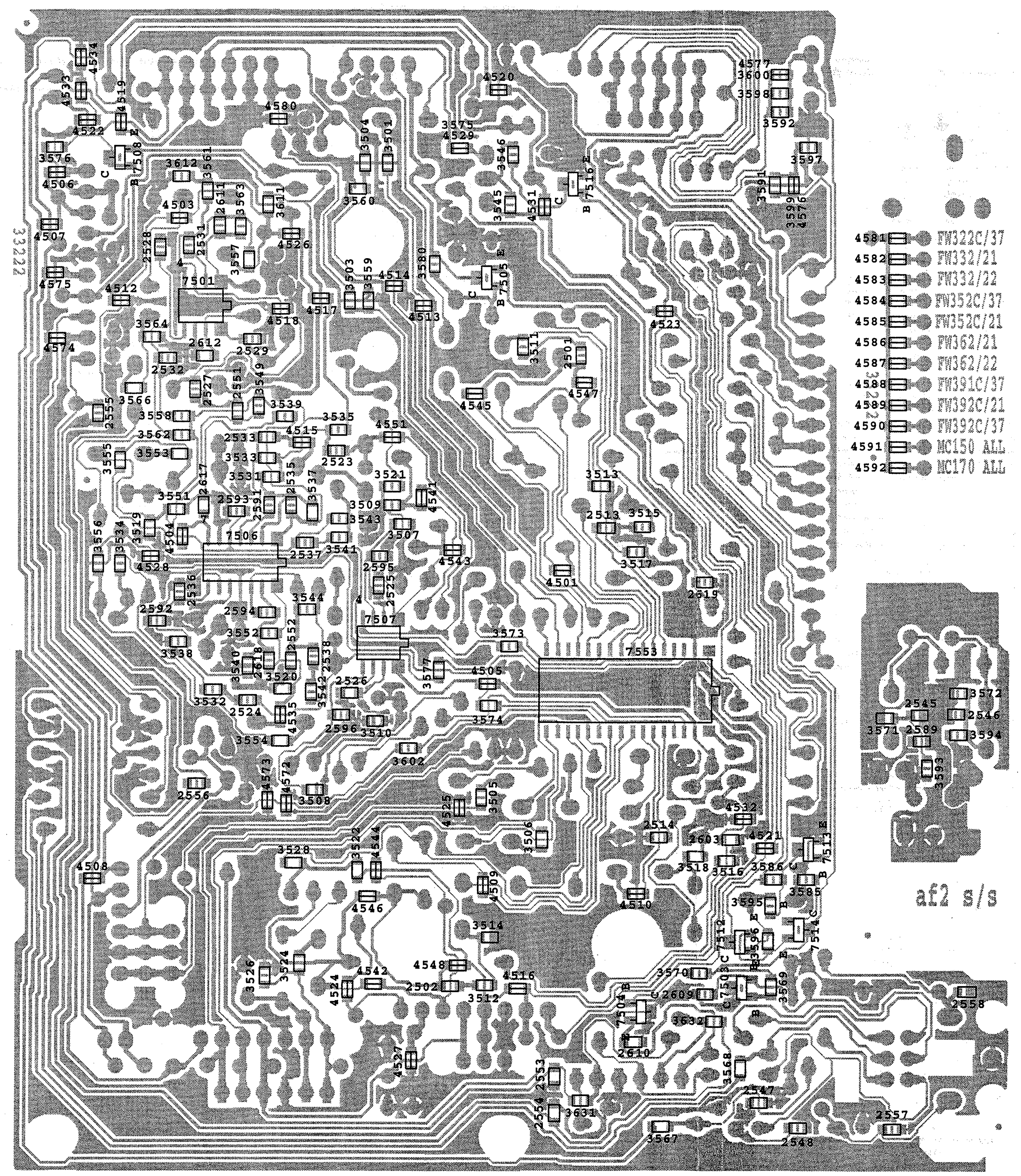
+CD	5V
CD_STBY	0V (CD stop) 2.3V (CD play)
REF	4.2V
HPREF	+6V
HP_SENSE	4.5V
+12, +12A, +12M	12V

CONNECTOR 1510
Measured in CD Play mode, unless otherwise stated.

1	SA	N.C.
2	NTC	5V
3	SoClipping	5V
4	VocalFader	4.5V
5	Standby	0V (standby) 5V (on)
6	AmOn	0V (standby) 3.8V (on)
7	PowerDown	8.15
8	Cdstandby	0V (CD stop) 2.3V (CD play)
9	MUTE	0V (CD stop) 0.75v (CD play, Tuner) 0.75v (Tape, Aux)
10	I^{2}CDATA	5V
11	I^{2}CCIK	5V
12	DGNO	0V
13	+D	5.6V
14	-VKK	-30V
15	F2	6V AC
16	F1	6V AC

+12	B2	CD_STBY	L3	MUTE	L3
+12	J13	CLIPPING	K3	NTC	J3
+12A	G10	CLIPPING	L19	NTC	L19
+12A	J13	F1	M5	PHONO/AUX_L	A2
+12A	J19	F1	L19	PHONO/AUX_R	B2
+12A	K14	F2	L5	PWR_DWN	K3
+12M	B2	F2	L19	PWR_DWN	L19
+12M	H4	GND_A	A2	R	I19
+12M	I19	GND_M	B2	R_AUDIO	H18
+12V	F2	HP_SENSE	G17	REC_L	I4
+5.6	J14	HP_SENSE	K5	REC_R	I4
+5.6V	A21	HPREF	B17	REF	B8
+5.6V	B21	HPREF	C13	REF	G6
+5.6V	J19	HPREF	D17	REF	G8
+5.6V	M3	HPREF	F13	SA_L	H4
+9V	G11	HPREF	F17	SA_R	H5
+9V	H8	HPREF	H15	SA_R	J3
-30V	H4	I2C_CLK	H11	STANDBY	K3
-30V	M3	I2C_CLK	L3	STANDBY	L19
-30V	L19	I2C_DATA	H12	TAPE_L	D4
AMP_ON	I19	I2C_DATA	L3	TAPE_R	E4
AMP_ON	K3	K_IN_L	F2	VOCAL FADER	G2
AUX_L	J8	K_IN_R	F2	VOCAL FADER	K3
AUX_R	J8	K_OUT_L	G2		
CD_L	D4	K_OUT_R	F2		
CD_R	E4	L	H19		
CD_STBY	B21	MUTE	C21		

Component Layout copperside view


3
2
1
A
B
C
D
4581 FW322C/37
4582 FW332/21
4583 FW332/22
4584 FW352C/37
4585 FW352C/21
4586 FW362/21
4587 FW362/22
4588 FW391C/37
4589 FW392C/21
4590 FW392C/37
4591 MC150 ALL
4592 MC170 ALL
7553
7501
7506
7507
af2 s/s

This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

2501	B	2	3515	B	2	3593	C	1	4576	A	1
2502	D	2	3516	C	1	3594	C	1	4577	A	1
2513	B	2	3517	B	2	3595	D	1	4580	A	3
2514	C	1	3518	C	1	3596	D	1	4581	A	1
2523	B	3	3519	B	3	3597	A	1	4582	A	1
2524	C	3	3520	C	3	3598	A	1	4583	A	1
2525	B	2	3521	B	2	3599	A	1	4584	B	1
2526	C	3	3522	C	3	3600	A	1	4585	B	1
2527	B	3	3524	D	3	3602	C	2	4586	B	1
2528	A	3	3526	D	3	3611	A	3	4587	B	1
2529	B	3	3528	C	3	3612	A	3	4588	B	1
2531	A	3	3531	B	3	3631	D	2	4589	B	1
2532	B	3	3532	C	3	3632	D	1	4590	B	1
2533	B	3	3533	B	3	4501	B	2	4591	B	1
2535	B	3	3534	B	3	4503	A	3	4592	B	1
2536	C	3	3535	B	3	4504	B	3	7501	B	3
2537	B	3	3537	B	3	4505	C	2	7503	D	1
2538	C	3	3538	C	3	4506	A	3	7504	D	2
2545	C	1	3539	B	3	4507	A	3	7505	A	2
2546	C	1	3540	C	3	4508	C	3	7506	B	3
2547	D	1	3541	B	3	4509	D	2	7507	C	2
2548	D	1	3542	C	3	4510	D	2	7508	A	3
2551	B	3	3543	B	3	4512	B	3	7512	D	1
2552	C	3	3544	C	3	4513	B	2	7513	C	1
2553	D	2	3545	A	2	4514	A	2	7514	D	1
2554	D	2	3546	A	2	4515	B	3	7516	A	2
2555	B	3	3549	B	3	4516	D	2	7553	C	2
2556	C	3	3551	B	3	4517	B	3			
2557	D	1	3552	C	3	4518	B	3			
2558	D	1	3553	B	3	4519	A	3			
2589	C	1	3554	C	3	4520	A	2			
2591	B	3	3555	B	3	4521	C	1			
2592	C	3	3556	B	3	4522	A	3			
2593	B	3	3557	A	3	4523	B	1			
2594	C	3	3558	B	3	4524	D	3			
2595	B	2	3559	B	2	4525	C	2			
2596	C	3	3560	A	3	4526	A	3			
2603	C	1	3561	A	3	4527	D	2			
2609	D	1	3562	B	3	4528	B	3			
2610	D	2	3563	A	3	4529	A	2			
2611	A	3	3564	B	3	4531	A	2			
2612	B	3	3566	B	3	4532	C	1			
2617	B	3	3567	D	1	4533	A	3			
2618	C	3	3568	D	1	4534	A	3			
2619	B	1	3569	D	1	4535	C	3			
3501	A	2	3570	D	1	4541	B	2			
3503	B	3	3571	C	1	4542	D	2			
3504	A	2	3572	C	1	4543	B	2			
3505	C	2	3573	C	2	4544	C	2			
3506	C	2	3574	C	2	4545	B	2			
3507	B	2	3575	A	2	4546	D	2			
3508	C	3	3576	A	3	4547	B	2			
3509	B	2	3577	C	2	4548	D	2			
3510	C	2	3580	A	2	4551	B	2			
3511	B	2	3585	C	1	4572	C	3			
3512	D	2	3586	C	1	4573	C	3			
3513	B	2	3591	A	1	4574	B	3			
3514	D	2	3592	A	1	4575	A	3			

MISCELLANEOUS

1507	4822 265 20553	CABLE WIRE
1508	4822 267 40898	CONNECTOR

CAPACITORS

2501	4822 122 33336	8.2nF 10% 50V
2502	4822 122 33336	8.2nF 10% 50V
2503	4822 124 41407	0.47µF 20% 63V
2504	4822 124 41407	0.47µF 20% 63V
2505	4822 124 40746	0.22µF 20% 63V
2506	4822 124 40746	0.22µF 20% 63V
2507	4822 121 42408	220nF 5% 63V
2508	4822 121 42408	220nF 5% 63V
2511	4822 121 51252	470nF 5% 63V
2512	4822 121 51252	470nF 5% 63V
2513	4822 122 32646	5.6nF 10% 50V
2514	4822 122 32646	5.6nF 10% 50V
2515	4822 124 40433	47µF 20% 25V
2517	4822 124 41407	0.47µF 20% 63V
2518	4822 124 41407	0.47µF 20% 63V
2521	4822 124 41407	0.47µF 20% 63V
2522	4822 124 41407	0.47µF 20% 63V
2523	4822 122 33177	10nF 20% 50V
2524	4822 122 33177	10nF 20% 50V
2525	5322 122 32531	100pF 5% NPO 50V (-/21)
2526	5322 122 32531	100pF 5% NPO 50V (-/21)
2529	5322 122 32654	22nF 10% 63V
2531	5322 122 32268	470pF 10% 50V
2532	5322 122 32268	470pF 10% 50V
2533	5322 122 32268	470pF 10% 50V
2534	4822 122 35519	470pF 10% 50V
2535	5322 122 33538	150pF 2% 63V
2536	5322 122 33538	150pF 2% 63V
2537	5322 122 32268	470pF 10% 50V
2538	5322 122 32268	470pF 10% 50V
2539	5322 121 42661	330nF 5% 63V
2540	5322 121 42661	330nF 5% 63V
2541	4822 126 12882	100nF +80-20% 50V
2542	4822 126 12882	100nF +80-20% 50V
2543	4822 124 40433	47µF 20% 25V
2544	4822 124 40433	47µF 20% 25V
2545	4822 122 33175	2.2nF 20% 50V
2546	4822 122 33175	2.2nF 20% 50V
2547	5322 122 32654	22nF 10% 63V
2549	4822 124 41407	0.47µF 20% 63V

CAPACITORS

2550	4822 124 41407	0.47µF 20% 63V
2551	5322 122 31865	1.5nF 10% 63V
2552	5322 122 31865	1.5nF 10% 63V
2557	5322 122 32654	22nF 10% 63V
2558	5322 122 32654	22nF 10% 63V
2573	4822 124 41407	0.47µF 20% 63V
2574	4822 124 41407	0.47µF 20% 63V
2575	4822 124 40246	4.7µF 20% 63V
2580	4822 124 40433	47µF 20% 25V
2581	4822 121 51387	10nF 20% 16V
2582	4822 124 40433	47µF 20% 25V
2583	4822 124 41525	100µF 20% 25V
2584	4822 124 41525	100µF 20% 25V
2585	4822 124 40433	47µF 20% 25V
2587	4822 124 41407	0.47µF 20% 63V
2588	4822 124 41407	0.47µF 20% 63V
2589	4822 126 10002	100nF 20% 25V
2591	5322 122 32268	470pF 10% 50V
2592	5322 122 32268	470pF 10% 50V
2593	5322 122 32268	470pF 10% 50V
2594	5322 122 32268	470pF 10% 50V
2601	4822 124 41407	0.47µF 20% 63V
2602	4822 124 41407	0.47µF 20% 63V
2609	5322 122 32531	100pF 5% 50V
2610	5322 122 32531	100pF 5% 50V
2611	5322 122 32448	10pF 5% 63V
2612	5322 122 32448	10pF 5% 63V
2615	4822 124 40242	1uF 20% 63V
2616	4822 124 40242	1uF 20% 63V
2617	4822 122 33575	220pF 5% 50V
2618	4822 122 33575	220pF 5% 50V
2619	5322 122 32654	22nF 10% 63V
2620	4822 124 40433	47µF 20% 25V

RESISTORS

3501	4822 117 11383	12k 1% 0.1W
3502	4822 117 11383	12k 1% 0.1W
3503	4822 051 20223	22k 5% 0.1W
3504	4822 051 20223	22k 5% 0.1W
3505	4822 117 11383	12k 1% 0.1W
3506	4822 117 11383	12k 1% 0.1W
3511	4822 051 20223	22k 5% 0.1W
3512	4822 051 20223	22k 5% 0.1W
3513	4822 051 20222	2k2 5% 0.1W
3514	4822 051 20222	2k2 5% 0.1W

RESISTORS

3515	4822 051 20472	4k7 5% 0.1W
3516	4822 051 20472	4k7 5% 0.1W
3517	4822 051 20472	4k7 5% 0.1W
3518	4822 051 20472	4k7 5% 0.1W
3519	4822 051 20103	10K 5% 0.1W
3520	4822 051 20103	10K 5% 0.1W
3521	4822 051 20473	47k 5% 0.1W (-/21)
3522	4822 051 20473	47k 5% 0.1W (-/21)
3523	4822 116 83882	39k 5% 0.5W
3524	4822 051 20393	39k 5% 0.1W
3527	4822 051 20473	47k 5% 0.1W (-/21)
3528	4822 051 20473	47k 5% 0.1W (-/21)
3531	4822 051 20473	47k 5% 0.1W
3532	4822 051 20473	47k 5% 0.1W
3533	4822 051 20473	47k 5% 0.1W
3534	4822 051 20473	47k 5% 0.1W
3535	4822 116 52234	100k 5% 0.5W
3536	4822 116 52234	100k 5% 0.5W
3537	4822 051 20473	47k 5% 0.1W
3538	4822 051 20473	47k 5% 0.1W
3539	4822 051 20473	47k 5% 0.1W
3540	4822 051 20473	47k 5% 0.1W
3541	4822 051 20223	22k 5% 0.1W
3542	4822 051 20223	22k 5% 0.1W
3543	4822 051 20223	22k 5% 0.1W
3544	4822 051 20223	22k 5% 0.1W
3545	4822 051 20562	5k6 5% 0.1W
3546	4822 051 20562	5k6 5% 0.1W
3547	4822 116 83864	10k 5% 0.5W
3548	4822 116 52256	2k2 5% 0.5W
3549	4822 051 20223	22k 5% 0.1W
3550	4822 051 20223	22k 5% 0.1W
3551	4822 051 20333	33k 5% 0.1W
3552	4822 051 20333	33k 5% 0.1W
3553	4822 051 20562	5k6 5% 0.1W
3554	4822 051 20562	5k6 5% 0.1W
3555	4822 051 20182	1k8 5% 0.1W
3556	4822 051 20182	1k8 5% 0.1W
3557	4822 051 20273	27k 5% 0.1W
3558	4822 051 20273	27k 5% 0.1W
3559	4822 051 20153	15k 5% 0.1W
3560	4822 051 20153	15k 5% 0.1W
3561	4822 051 20273	27k 5% 0.1W
3562	4822 051 20273	27k 5% 0.1W
3563	4822 051 20334	330k 5% 0.1W

RESISTORS

3564	4822 051 20334	330k 5% 0.1W
3565	4822 116 52195	47Ω 5% 0.5W
3566	4822 051 20479	47Ω 5% 0.1W
3567	4822 051 20689	68Ω 5% 0.1W
3568	4822 051 20689	68Ω 5% 0.1W
3569	4822 051 10102	1k 2% 0.25W
3570	4822 051 10102	1k 2% 0.25W
3571	4822 051 20683	68k 5% 0.1W
3572	4822 051 20683	68k 5% 0.1W
3573	4822 051 20822	8k2 5% 0.1W
3574	4822 051 20822	8k2 5% 0.1W
3576	4822 051 20229	22Ω 5% 0.1W
3575	4822 051 20228	2Ω2 5% 0.1W
3577	4822 051 10102	1k 2% 0.25W
3578	4822 051 10102	1k 2% 0.25W
3580	4822 051 20272	2k7 5% 0.1W
3581	4822 116 83864	10k 5% 0.5W
3582	4822 050 11002	1k 1% 0.4W
3583	4822 050 11002	1k 1% 0.4W
3584	4822 050 24705	4M7 1% 0.6W
3585	4822 051 20472	4k7 5% 0.1W
3586	4822 051 10102	1k 2% 0.25W
3589	4822 116 52244	15k 5% 0.5W
3593	4822 051 10102	1k 2% 0.25W
3594	4822 051 10102	1k 2% 0.25W
3595	4822 051 20562	5k6 5% 0.1W
3601	4822 051 20124	120k 5% 0.1W
3602	4822 051 20124	120k 5% 0.1W
3611	4822 051 20392	3k9 5% 0.1W
3612	4822 051 20472	4k7 5% 0.1W
3631	4822 051 20101	100Ω 5% 0.1W
3632	4822 051 20101	100Ω 5% 0.1W
3635	4822 052 10109	10Ω 5% 0.33W

CHIP JUMPER

4501	4822 051 20008	0Ω Jumper (Not for -/21)
4503	4822 051 20008	0Ω Jumper
4504	4822 051 20008	0Ω Jumper
4505	4822 051 20008	0Ω Jumper
4506	4822 051 20008	0Ω Jumper
4507	4822 051 20008	0Ω Jumper
4508	4822 051 20008	0Ω Jumper
4509	4822 051 20008	0Ω Jumper
4510	4822 051 20008	0Ω Jumper
4512	4822 051 20008	0Ω Jumper

CHIP JUMPER

4513	4822 051 20008	0Ω Jumper
4514	4822 051 20008	0Ω Jumper
4515	4822 051 20008	0Ω Jumper
4518	4822 051 20008	0Ω Jumper
4517	4822 051 20008	0Ω Jumper
4519	4822 051 20008	0Ω Jumper
4520	4822 051 20008	0Ω Jumper
4522	4822 051 20008	0Ω Jumper
4523	4822 051 20008	0Ω Jumper
4524	4822 051 20008	0Ω Jumper
4525	4822 051 20008	0Ω Jumper
4526	4822 051 20008	0Ω Jumper
4528	4822 051 20008	0Ω Jumper
4529	4822 051 20008	0Ω Jumper
4531	4822 051 20008	0Ω Jumper
4532	4822 051 20008	0Ω Jumper
4533	4822 051 20008	0Ω Jumper
4534	4822 051 20008	0Ω Jumper
4535	4822 051 20008	0Ω Jumper
4545	4822 051 20008	0Ω Jumper
4546	4822 051 20008	0Ω Jumper
4551	4822 051 20008	0Ω Jumper
4572	4822 051 20008	0Ω Jumper
4573	4822 051 20008	0Ω Jumper
4574	4822 051 20008	0Ω Jumper
4575	4822 051 20008	0Ω Jumper
4576	4822 051 20008	0Ω Jumper
4577	4822 051 20008	0Ω Jumper
4580	4822 051 20008	0Ω Jumper

DIODES

6501	4822 130 34382	BZX79-C8V2

INTERGRATED CIRCUITS

7501	4822 209 31378	NJM4556AM
7506	4822 209 63709	LM324D
7507	4822 209 83357	NJM4560M (-/21)
7553	4822 209 33652	TEA6321T/V1

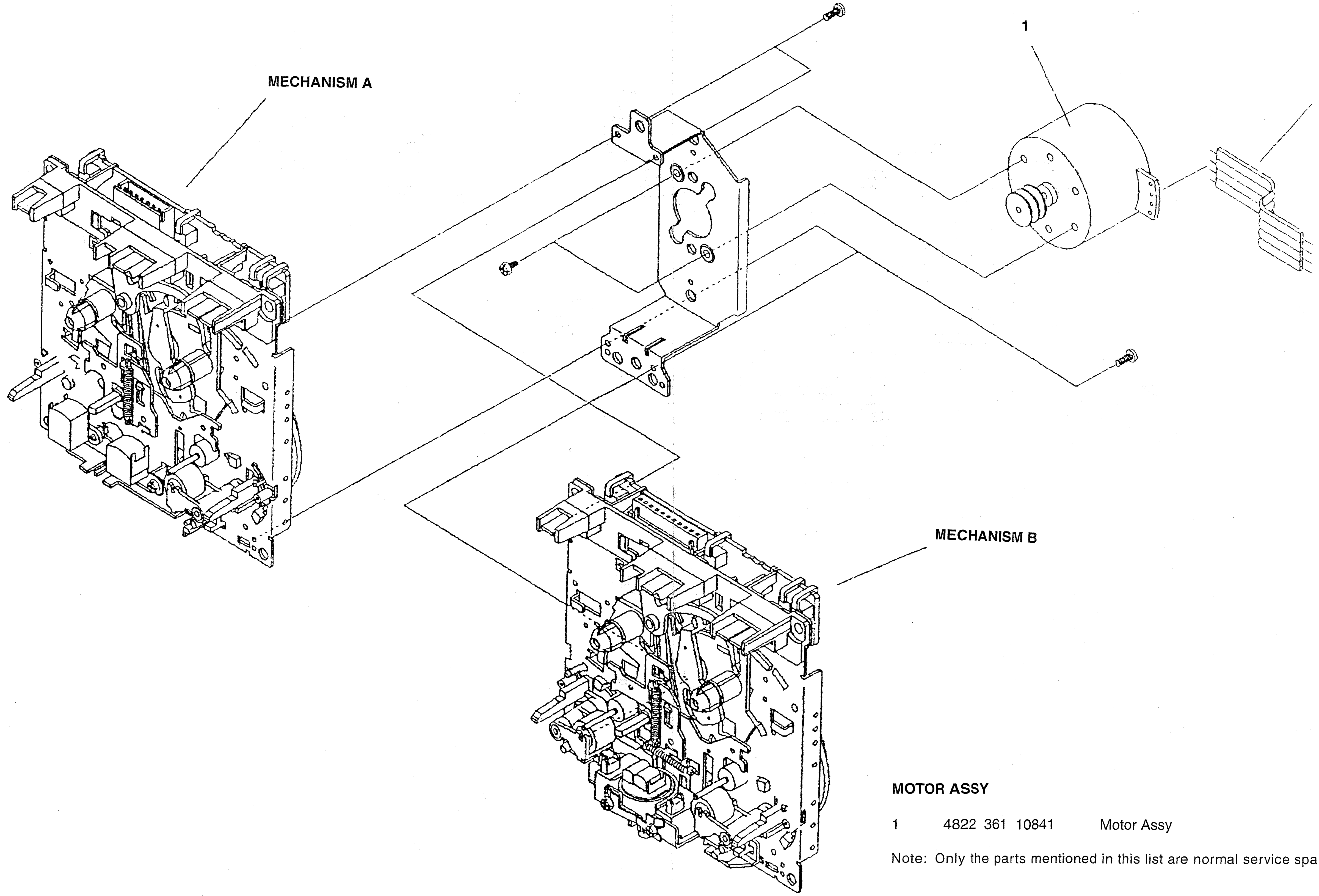
TRANSISTORS

7503	4822 130 42615	BC817-40
7504	4822 130 42615	BC817-40
7505	5322 130 42136	BC848C
7508	5322 130 42136	BC848C
7512	5322 130 42136	BC848C
7513	5322 130 42136	BC848C
7514	5322 130 41983	BC858B
7515	4822 130 41327	BC327-40
7516	5322 130 42136	BC848C

COILS

5501	4822 156 21721	COIL 2.2μH
5502	4822 156 21721	COIL 2.2μH
5503	4822 156 21721	COIL 2.2μH
5504	4822 156 21721	COIL 2.2μH

TAPE EXPLODED VIEW MECHANISM A & B

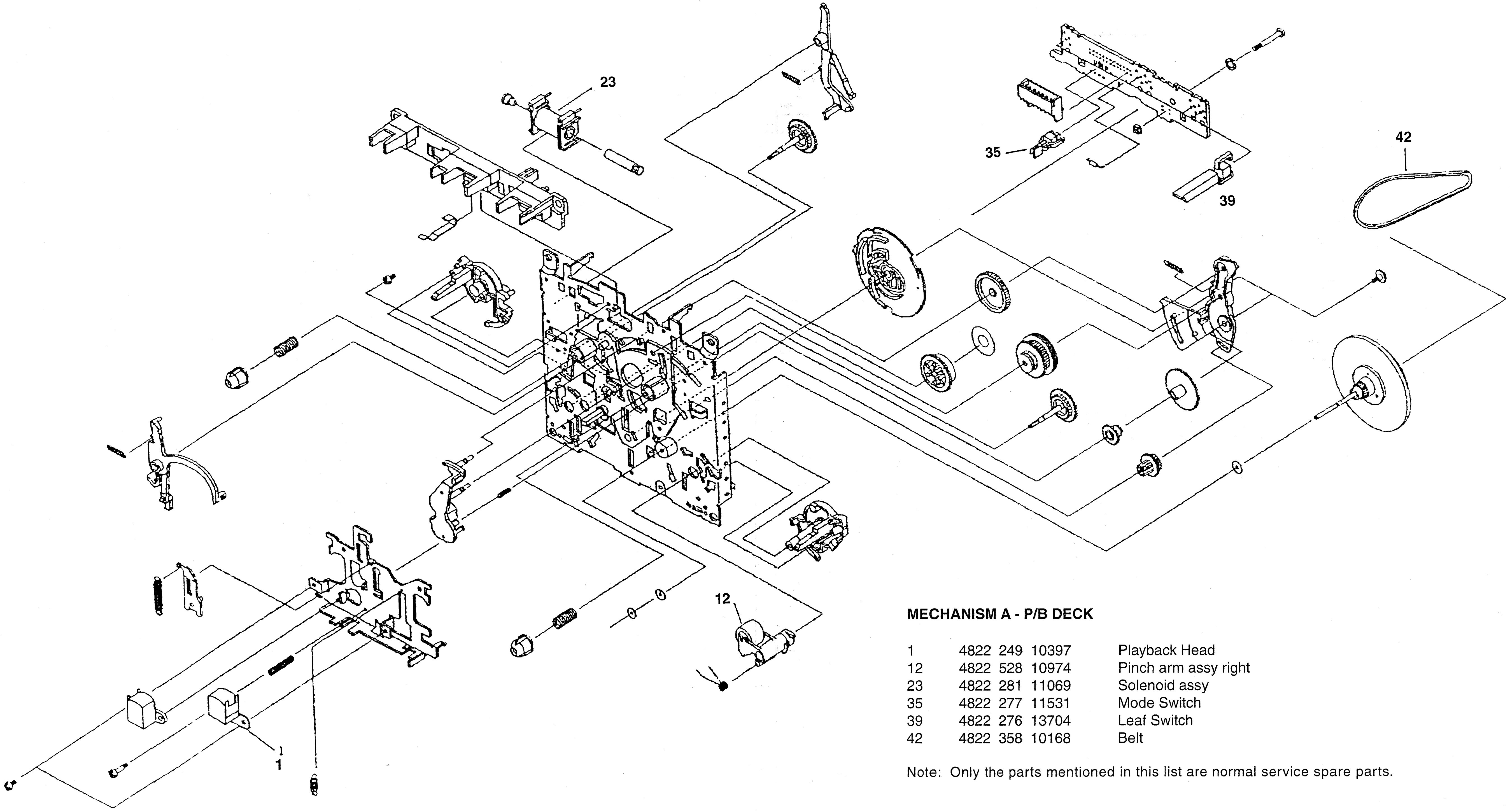

MECHANISM A
1
MECHANISM B

MOTOR ASSY

1	4822 361 10841	Motor Assy

Note: Only the parts mentioned in this list are normal service spare parts.

PLAYBACK MECHANISM A



MECHANISM A - P/B DECK

1	4822 249 10397	Playback Head
12	4822 528 10974	Pinch arm assy right
23	4822 281 11069	Solenoid assy
35	4822 277 11531	Mode Switch
39	4822 276 13704	Leaf Switch
42	4822 358 10168	Belt

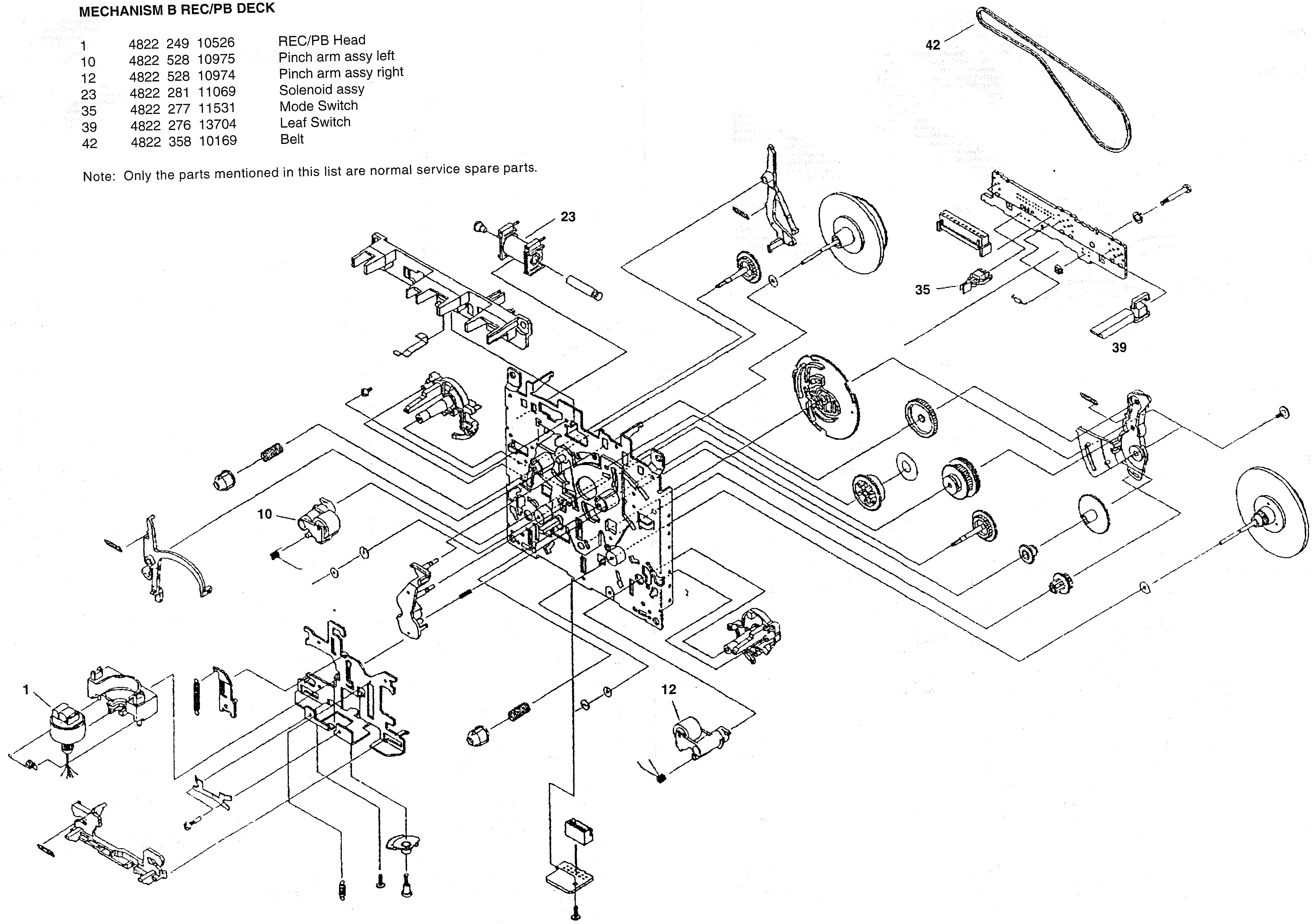
Note: Only the parts mentioned in this list are normal service spare parts.

REC/PLAYBACK MECHANISM B

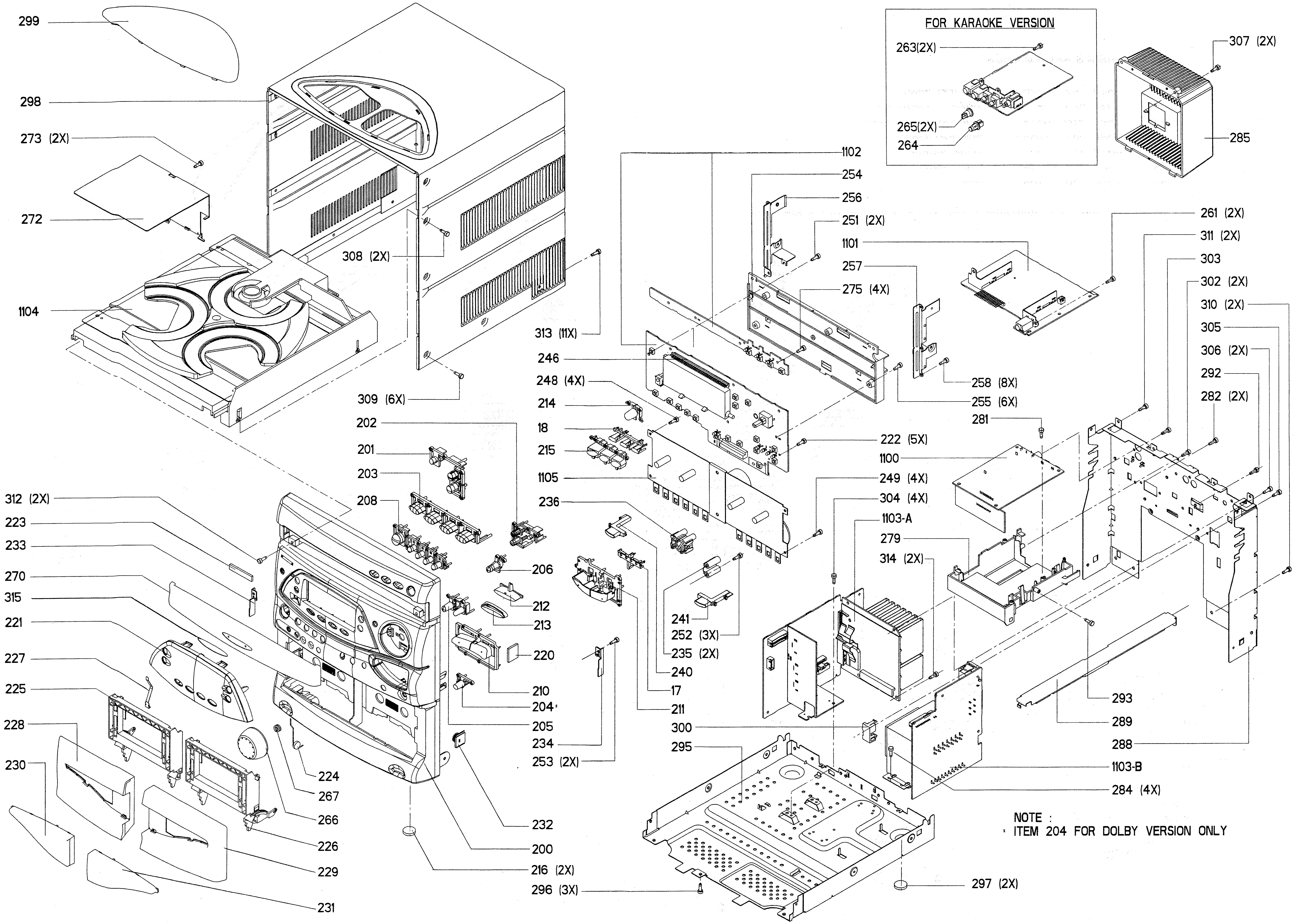
MECHANISM B REC/PB DECK

1	4822 249 10526	REC/PB Head
10	4822 528 10975	Pinch arm assy left
12	4822 528 10974	Pinch arm assy right
23	4822 281 11069	Solenoid assy
35	4822 277 11531	Mode Switch
39	4822 276 13704	Leaf Switch
42	4822 358 10169	Belt

Note: Only the parts mentioned in this list are normal service spare parts.



EXPLODED VIEW OF SET


FOR KARAOKE VERSION
263(2X)
265(2X)
264
307 (2X)
285
299
298
273 (2X)
272
308 (2X)
1104
313 (11X)
309 (6X)
1102
254
256
251 (2X)
1101
257
275 (4X)
246
248 (4X)
258 (8X)
255 (6X)
214
18
215
1105
236
222 (5X)
1100
249 (4X)
304 (4X)
1103-A
279
314 (2X)
281
261 (2X)
311 (2X)
303
302 (2X)
310 (2X)
305
306 (2X)
292
282 (2X)
202
201
203
208
206
212
213
220
210
204
205
234
253 (2X)
241
252 (3X)
235 (2X)
240
17
211
300
295
296 (3X)
293
289
288
1103-B
284 (4X)
297 (2X)
312 (2X)
223
233
270
315
221
227
225
228
230
224
267
266
226
229
231
232
200
216 (2X)

NOTE :
* ITEM 204 FOR DOLBY VERSION ONLY

MECHANICAL PARTLIST

200	4822 459 04145	FRONT CABINET /37/34
200	4822 459 04239	FRONT CABINET /21/30
200	4822 459 04241	FRONT CABINET /22/25
201	4822 410 10421	BUTTON DISPLAY LEFT
202	4822 410 10422	BUTTON DISPLAY RIGHT
203	4822 410 10423	BUTTON DISPLAY CENTRE
205	4822 410 10199	BUTTON OPTIMUM/DBB
206	4822 410 10418	BUTTON INCREDIBLE SOUND
208	4822 410 10424	BUTTON POWER/SOURCE
209	4822 256 10206	HOLDER LED
210	4822 410 10202	BUTTON DSC1
211	4822 410 10203	BUTTON DSC2
214	4822 410 10204	BUTTON OPEN/CLOSE
215	4822 410 10205	BUTTON CDC SELECT
216	4822 462 40683	PLATE (FOOT)
219	4822 466 10972	LIGHT GUIDE CDC SELECT
221	4822 450 10106	WINDOW DISPLAY /37
221	4822 450 10137	WINDOW DISPLAY
224	4822 492 71048	CASSETTE DOOR SPRING
225	4822 443 64597	DOOR CASSETTE LEFT
226	4822 443 64598	DOOR CASSETTE RIGHT
227	4822 492 42787	SPRING CASSETTE
228	4822 442 00288	COVER DOOR CASS LEFT
228	4822 442 00388	COVER DOOR CASS LEFT /21/30
229	4822 442 00287	COVER DOOR CASS RIGHT
230	4822 381 11672	LENS CASSETTE LEFT
231	4822 381 11673	LENS CASSETTE RIGHT
232	4822 529 10322	DAMPER ASSY
240	4822 410 10425	BUTTON EJECT LEFT
241	4822 410 10426	BUTTON EJECT RIGHT
264	4822 410 10535	BUTTON KARAOKE /21/30
265	4822 410 10533	KNOB KARAOKE /21/30
266	4822 410 10419	KNOB VOLUME ROTARY
267	4822 492 51374	RING
270	4822 442 00286	COVER TRAY CDC
297	4822 462 40683	PLATE (FOOT)
298	4822 426 10069	CABINET REAR
299	4822 381 11674	WINDOW CDC
300	4822 402 10288	BRACKET MAINS SOCKET

MISCELLANEOUS

4822 445 10557	1X LOUDSPEAKER BOX
4822 445 10516	1X LOUDSPEAKER BOX /37
4822 303 50063	FM AERIAL
4822 320 11094	FM ANTENNA WIRE /37
4822 218 10739	REMOTE CONTROL
4822 303 50082	AM FRAME AERIAL
4822 321 10249	MAINS CORD /21/22/34
4822 321 10883	MAINS CORD /37
4822 321 10886	MAINS CORD /25
4822 321 10954	MAINS CORD /30
4822 736 14341	INSTRUCTION FOR USE /21/30
4822 736 14342	INSTRUCTION FOR USE /22/25
4822 736 14283	INSTRUCTION FOR USE /37
4822 146 10454	TRANSFORMER /37
4822 146 10492	TRANSFORMER /21/30
4822 146 10491	TRANSFORMER /22/25/34
4822 691 10494	TAPE DECK CWB44CFR03

LIST OF SCREWS

222	SCR PAN TORX TAP ST ZN BK 3X12
248	SCR PAN TORX TAP ST ZN BK 3X12
249	SCR PAN TORX TAP ST ZN BK 3X30
251	SCR PAN TORX TAP ST ZN BK 3X12
252	SCR PAN TORX TAP ST ZN BK 3X25
253	SCR PAN TORX TAP ST ZN BK 3X8
255	SCR PAN TORX TAP ST ZN BK 3X12
258	SCR PAN TORX TAP ST ZN BK 3X12
261	SCR PAN TORX TAP ST ZN BK 3X12
263	SCR PAN TORX TAP ST ZN BK 3X10
275	SCR PAN TORX TAP ST ZN BK 3X12
281	SCR WASH PAN TORX ST ZN 3X12
284	SCR WASH TORX TAP ST ZN 3X6
292	SCR WASH TORX TAP ST ZN 3X6
293	SCR WASH PAN TORX ST ZN 3X10
302	SCR PAN TORX TAP ST ZN BK 3X12
303	SCR PAN TORX TAP ST ZN BK 3X12
304	SCR WASH TORX TAP ST ZN 3X6
305	SCR PAN TORX TAP ST ZN BK 3X12
306	SCR PAN TORX TAP ST ZN M3X6
307	SCR PAN TORX TAP ST ZN BK 3X10
308	SCR WASH PAN TORX ST ZN 3X16
310	SCR WASH TORX TAP ST ZN 3X6
311	SCR PAN TORX TAP ST ZN BK 3X12
312	SCR PAN TORX TAP ST ZN BK 3X12
313	SCR WASH TORX TAP ST ZN 3X10

5088

FW372C

A97 - 182

Service
Service
Service

Product Service Group CE Audio

Service Information

Already published Service Informations: *A97 - 156*

CHANGES DURING PRODUCTION

MAIN UNIT

* From production week 9644 onwards Pos 224 is changed to improve the cassette door eject action

224	4822 492 11086	Spring Compression

FRONT BOARD

* From production week 9652 onwards layout stage 3358.1 (identified by the last digit of the 12-digit code printed on the copper pattern) is implemented. New drawings are enclosed.

Reason: Prevent DBB button from hitting bare wire and re-layout return ground line for FTD display and Reset circuitry.

Change	2415	4822 126 13838	100nF 50V +80/-20%
Add	4401	4822 051 20008	Chip Jumper 0R 0805
	4402	4822 051 10008	Chip Jumper 0R 1206
	4418	4822 051 20008	Chip Jumper 0R 0805
	4500	4822 051 20008	Chip Jumper 0R 0805
	9423	-	Bare wire
	9423	-	Bare wire

* From production week 9710 resistor 3510 is change to 1k 2% 0.25W 4822 051 10102 to facilitate the usage of Power 2VA new layout.

AF2 BOARD

* From production week 9628 a new layout is implemented to solve EMC problem. The new layout and circuit drawings are enclosed.

Add	2559	22nF 50V 10%	5322 122 32654
	2579	22nF 50V 10%	5322 122 32654

* From production week 9706 onwards the following changes are made to increase input signal level for better tuner performance.

Change	2545 to 470pF 10% 50V	5322 122 32268
	2546 to 470pF 10% 50V	5322 122 32268
	2611 to 22pF 5% 50V	5322 122 32658
	2612 to 22pF 5% 50V	5322 122 32658
	3553 to 3k9 5% 0.1W	4822 051 20392
	3554 to 3k9 5% 0.1W	4822 051 20392
	3563 to 220k 5% 0.1W	4822 051 20224
	3564 to 220k 5% 0.1W	4822 051 20224
	3573 to 3k9 5% 0.1W	4822 051 20392
	3574 to 3k9 5% 0.1W	4822 051 20392
Add	2579 22nF 10% 63V	5322 122 32654
Delete	2548	

POWER 2VA MODULE

* From production week 9710 a new layout is implemented, enclosed is the new layout and circuit drawings.

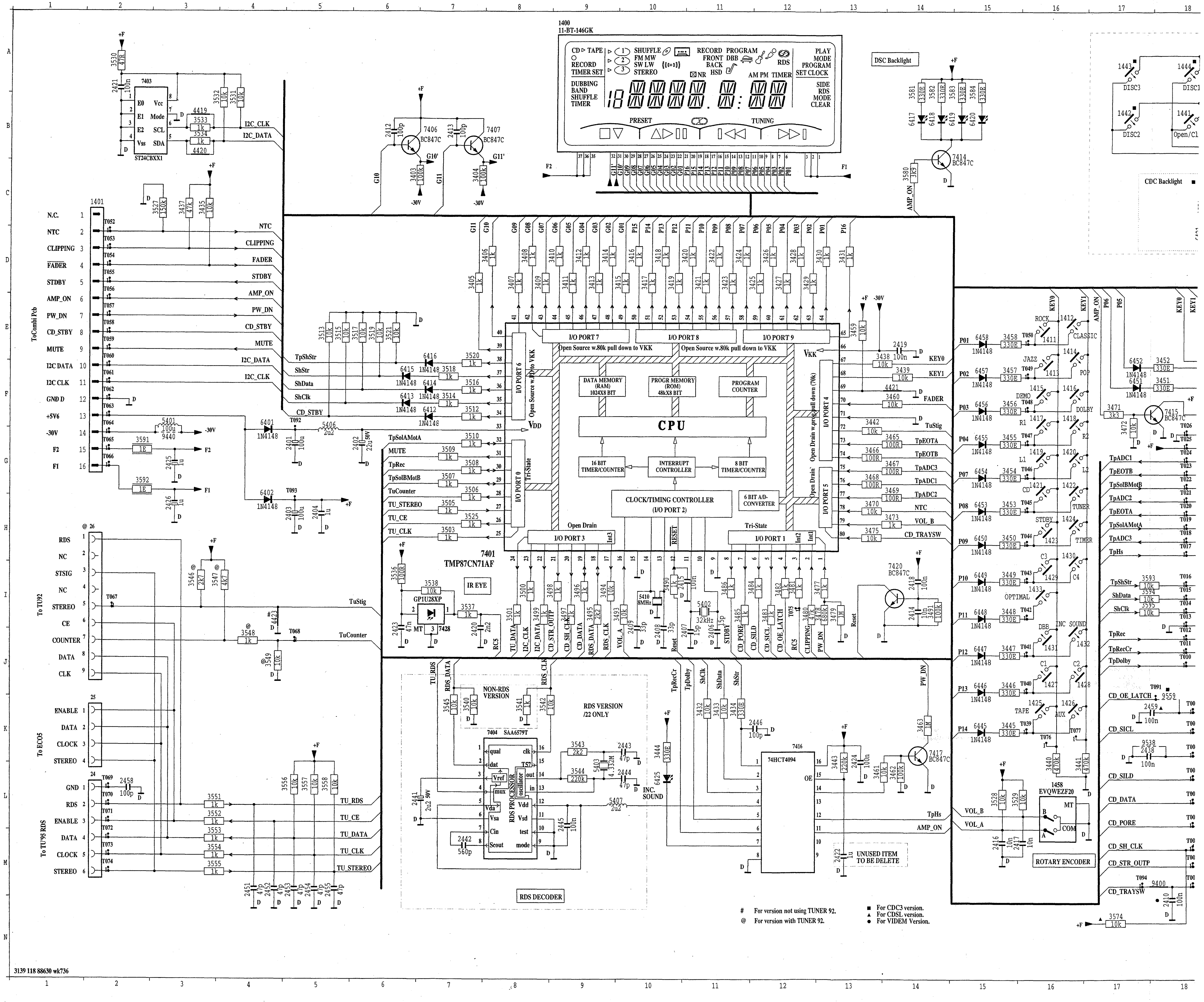
CDC-3 MODULE

A new CDC-3 Module is introduced into the set from production week:
9736 for sets serial no. RZ......
9738 for sets serial no. SV......
9742 for sets serial no. KT......

The electrical schematics, layout, exploded view, etc are enclosed.

Suppl

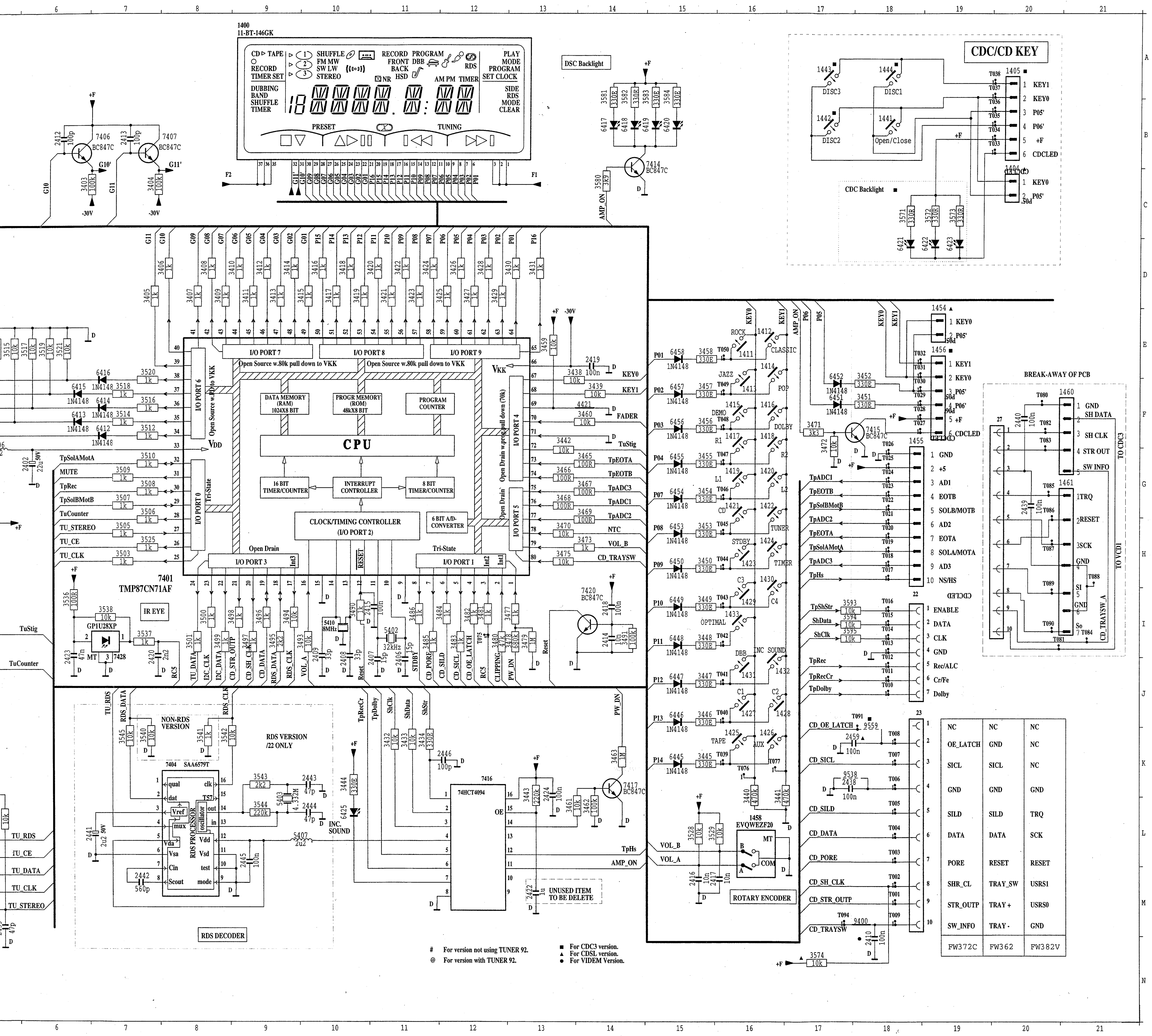
FRONT CIRCUIT


1400
11-BT-146GK
7401
TMP87CN71AF
CPU
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48KX8 BIT
PROGRAM COUNTER
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
I/O PORT 0
I/O PORT 1
I/O PORT 3
I/O PORT 4
I/O PORT 5
I/O PORT 6
I/O PORT 7
I/O PORT 8
I/O PORT 9
Open Source w.80k pull down to VKK
Open Drain
Tri-State
7403
ST24C8XX1
1401
ToCombi Pcb
N.C.
NTC
CLIPPING
FADER
STDBY
AMP_ON
PW_DN
CD_STBY
MUTE
I2C DATA
I2C CLK
GND D
+5V6
-30V
F2
FI
To TU92
To ECO5
To TU'95 RDS
RDS
NC
STSIG
STEREO
CE
COUNTER
DATA
CLK
ENABLE
CLOCK
GND
IR EYE
GP1U28XP
7404 SAA6579T
RDS PROCESSOR
NON-RDS VERSION
RDS VERSION /22 ONLY
RDS DECODER
7416
74HCT4094
UNUSED ITEM TO BE DELETE
DSC Backlight
CDC Backlight
ROTARY ENCODER
1458
EVQWEZF20
7406 BC847C
7407 BC847C
7414 BC847C
7415 BC847C
7417 BC847C
7420 BC847C
ROCK
CLASSIC
JAZZ
POP
DEMO
DOLBY
TUNER
STDBY
TIMER
OPTIMAL
DBB
INC SOUND
TAPE
AUX
DISC1
DISC2
DISC3
Open/Cl
INC. SOUND
Reset
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H I J K L M N

For version not using TUNER 92.
@ For version with TUNER 92.
■ For CDC3 version.
▲ For CDSL version.
● For VIDEM Version.

3139 118 88630 wk736

Suppl

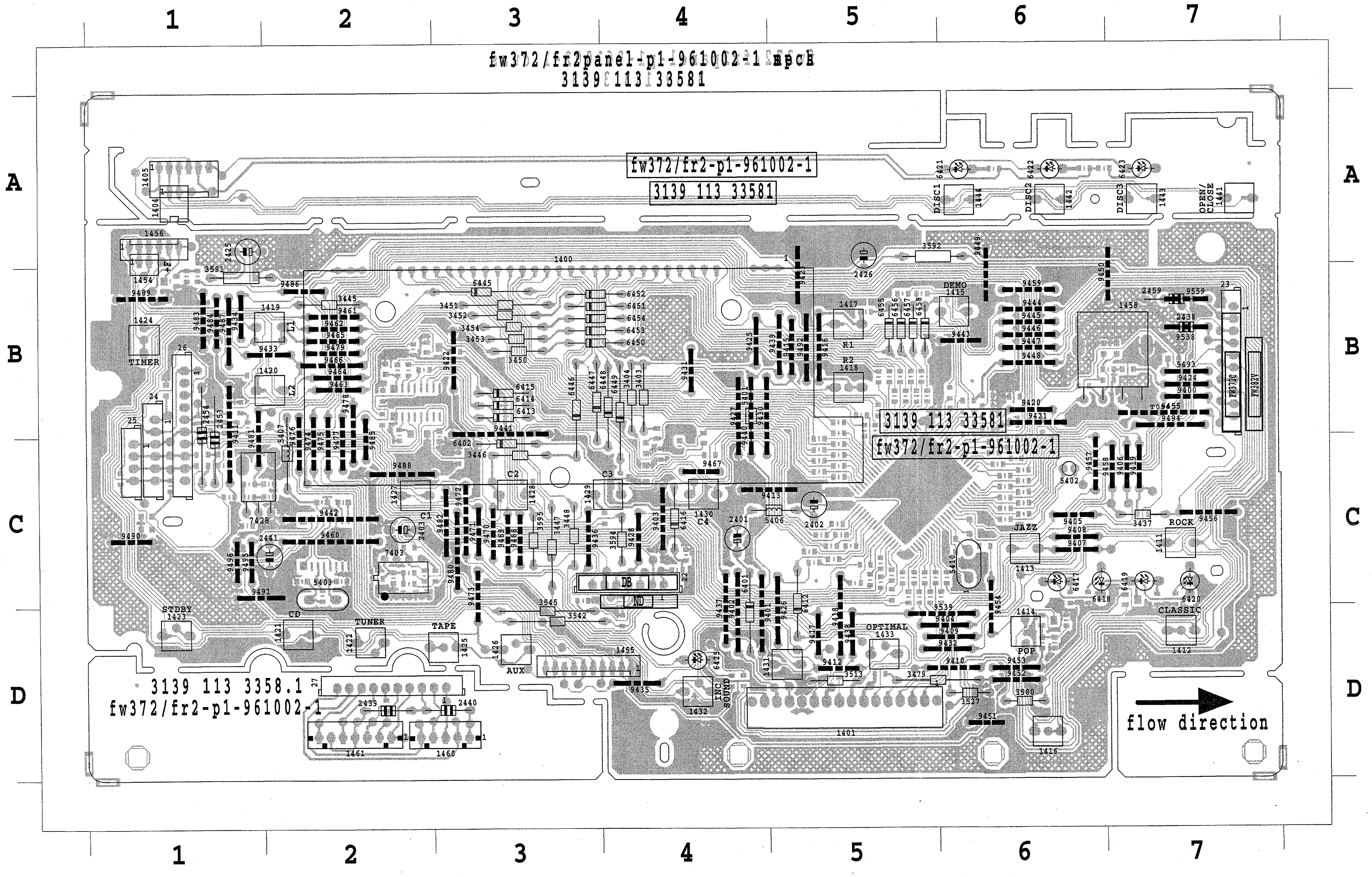

1400
11-BT-146GK
CD▷ TAPE
RECORD
TIMER SET
DUBBING
BAND
SHUFFLE
TIMER
SHUFFLE
FM MW
SW LW
STEREO
RECORD PROGRAM
FRONT DBB
BACK
HSD
NR
AM PM TIMER
RDS
PLAY
MODE
PROGRAM
SET CLOCK
SIDE
RDS
MODE
CLEAR
PRESET
TUNING
F2
F1
7406
BC847C
7407
BC847C
DSC Backlight
7414
BC847C
AMP_ON
CDC/CD KEY
DISC3
DISC1
DISC2
Open/Close
KEY1
KEY0
P05'
P06'
+F
CDCLED
CDC Backlight
I/O PORT 7
I/O PORT 8
I/O PORT 9
Open Source w.80k pull down to VKK
I/O PORT 6
I/O PORT 4
I/O PORT 5
I/O PORT 0
I/O PORT 3
I/O PORT 1
DATA MEMORY (RAM) 1024X8 BIT
PROGR MEMORY (ROM) 48kX8 BIT
PROGRAM COUNTER
CPU
16 BIT TIMER/COUNTER
INTERRUPT CONTROLLER
8 BIT TIMER/COUNTER
CLOCK/TIMING CONTROLLER (I/O PORT 2)
6 BIT A/D-CONVERTER
Open Drain
Tri-State
7401
TMP87CN71AF
IR EYE
GP1U28XP
7420
BC847C
KEYO
KEY1
FADER
TuStig
TpEOTA
TpEOTB
TpADC1
TpADC2
NTC
VOL_B
CD_TRAYSW
TpSolAMotA
MUTE
TpRec
TpSolBMotB
TuCounter
TU_STEREO
TU_CE
TU_CLK
TU_DATA
TU_RDS
ROCK
CLASSIC
JAZZ
POP
DEMO
DOLBY
STDBY
TUNER
TIMER
OPTIMAL
DBB
INC SOUND
TAPE
AUX
1458
EVQWEZF20
ROTARY ENCODER
VOL_B
VOL_A
1454
1456
1455
7415
BC847C
GND
+5
AD1
EOTB
SOLB/MOTB
AD2
EOTA
SOLA/MOTA
AD3
NS/HS
ENABLE
DATA
CLK
GND
Rec/ALC
Cr/Fe
Dolby
CD_OE_LATCH
CD_SICL
CD_SILD
CD_DATA
CD_PORE
CD_SH_CLK
CD_STR_OUTP
CD_TRAYSW
BREAK-AWAY OF PCB
1460
1461
SH DATA
SH CLK
STR OUT
SW INFO
1TRQ
2RESET
3SCK
TO CDC3
TO VCD1
7404 SAA6579T
NON-RDS VERSION
RDS VERSION /22 ONLY
RDS PROCESSOR
RDS DECODER
7416
74HCT4094
7417
BC847C
INC. SOUND
UNUSED ITEM TO BE DELETE
# For version not using TUNER 92.
@ For version with TUNER 92.
■ For CDC3 version.
▲ For CDSL version.
● For VIDEM Version.

NC	NC	NC
OE_LATCH	GND	NC
SICL	SICL	NC
GND	GND	GND
SILD	SILD	TRQ
DATA	DATA	SCK
PORE	RESET	RESET
SHR_CL	TRAY_SW	USRS1
STR_OUTP	TRAY +	USRS0
SW_INFO	TRAY -	GND
FW372C	FW362	FW382V

1400	A 9
1401	C 2
1404	C20
1405	A20
1411	E16
1412	E16
1413	F16
1414	E16
1415	F16
1416	F16
1417	F16
1418	F16
1419	G16
1420	G16
1421	G16
1422	G16
1423	H16
1424	H16
1425	K16
1426	K16
1427	J16
1428	J16
1429	I16
1430	H16
1431	J16
1432	J16
1433	I16
1441	B18
1442	B17
1443	A17
1444	A18
1454	E19
1455	F19
1456	E19
1458	L16
1460	F20
1461	G20
22	I18
23	J18
24	L 2
2401	G 5
2402	G 6
2403	H 5
2404	H 5
2406	J11
2407	J11
2408	J10
2409	I10
2410	N18
2412	B 6
2413	B 7
2414	I14
2415	I11
2416	M15
2417	M15
2418	I14
2419	E14
2420	I 7
2421	A 2
2422	M13
2423	I 6
2424	K13
2425	G 3
2426	H 3
2438	K17
2439	G20
2440	F20
2441	L 7
2442	M 7
2443	K10
2444	L10
2445	L 9
2446	K12
2451	M 4
2452	M 4
2453	M 5
2454	M 5
2455	M 5
2458	L 2
2459	K18
25	K 2
26	H 2
27	F20
3403	C 6
3404	C 7
3405	D 7
3406	D 8
3407	D 8
3408	D 8
3409	D 8
3410	D 9
3411	D 9
3412	D 9
3413	D 9
3414	D 9
3415	D10
3416	D10
3417	D10
3418	D10
3419	D10
3420	D11
3421	D11
3422	D11
3423	D11
3424	D11
3425	D12
3426	D12
3427	D12
3428	D12
3429	D12
3430	D13
3431	D13
3432	K11
3433	K11
3434	K11
3435	C 3
3437	C 3
3438	E13
3439	F14
3440	K16
3441	K16
3442	F13
3443	K13
3444	K10
3445	K15
3446	J15
3447	J15
3448	I15
3449	I15
3450	H15
3451	F18
3452	E18
3453	H15
3454	G15
3455	G15
3456	F15
3457	F15
3458	E15
3459	E13
3460	F14
3461	L13
3462	L14
3463	K14
3465	G14
3466	G13
3467	G14
3468	G13
3469	G14
3470	H13
3471	F17
3472	F17
3473	H14
3475	H13
3477	I13
3478	I13
3479	I13
3480	I12
3481	I12
3482	I12
3483	I12
3484	I12
3485	I11
3486	I11
3490	I10
3491	I14
3493	I10
3494	I 9
3495	I 9
3496	I 9
3497	I 9
3498	I 9
3499	I 8
3500	I 8
3501	I 8
3503	H 7
3505	H 7
3506	G 7
3507	G 7
3508	G 7
3509	G 7
3510	G 7
3512	F 7
3513	E 5
3514	F 7
3515	E 5
3516	F 7
3517	E 6
3518	F 7
3519	E 6
3520	E 7
3521	E 6
3525	H 7
3527	C 3
3528	L15
3529	L15
3530	A 2
3531	B 4
3532	B 3
3533	B 3
3534	B 3
3536	I 6
3537	I 7
3538	I 7
3540	K 7
3541	K 8
3542	K 8
3543	K 9
3544	L 9
3545	K 7
3546	I 3
3547	I 3
3548	J 4
3549	J 4
3551	L 3
3552	L 3
3553	M 3
3554	M 3
3555	M 3
3556	L 4
3557	L 5
3558	L 5
3571	C18
3572	C19
3573	C19
3574	N17
3580	C14
3581	A14
3582	A14
3583	A14
3584	A15
3591	G 2
3592	G 2
3593	I17
3594	I17
3595	I17
4419	B 3
4420	B 3
4421	F14
4423	I 4
5401	F 3
5402	I11
5403	L 9
5406	F 5
5407	L10
5410	I10
6401	F 4
6402	H 4
6412	F 7
6413	F 6
6414	F 7
6415	F 6
6416	E 7
6417	B14
6418	B14
6419	B14
6420	B15
6421	D18
6422	D19
6423	D19
6425	L10
6445	K15
6446	J15
6447	J15
6448	I15
6449	I15
6450	H15
6451	F17
6452	F17
6453	H15
6454	G15
6455	G15
6456	F15
6457	F15
6458	E15
7401	H 8
7403	A 2
7404	K 8
7406	B 7
7407	B 8
7414	B14
7415	F18
7416	K12
7417	K14
7420	I14
7428	J 7
9400	M18
9440	G 3
9538	K17
9559	K18

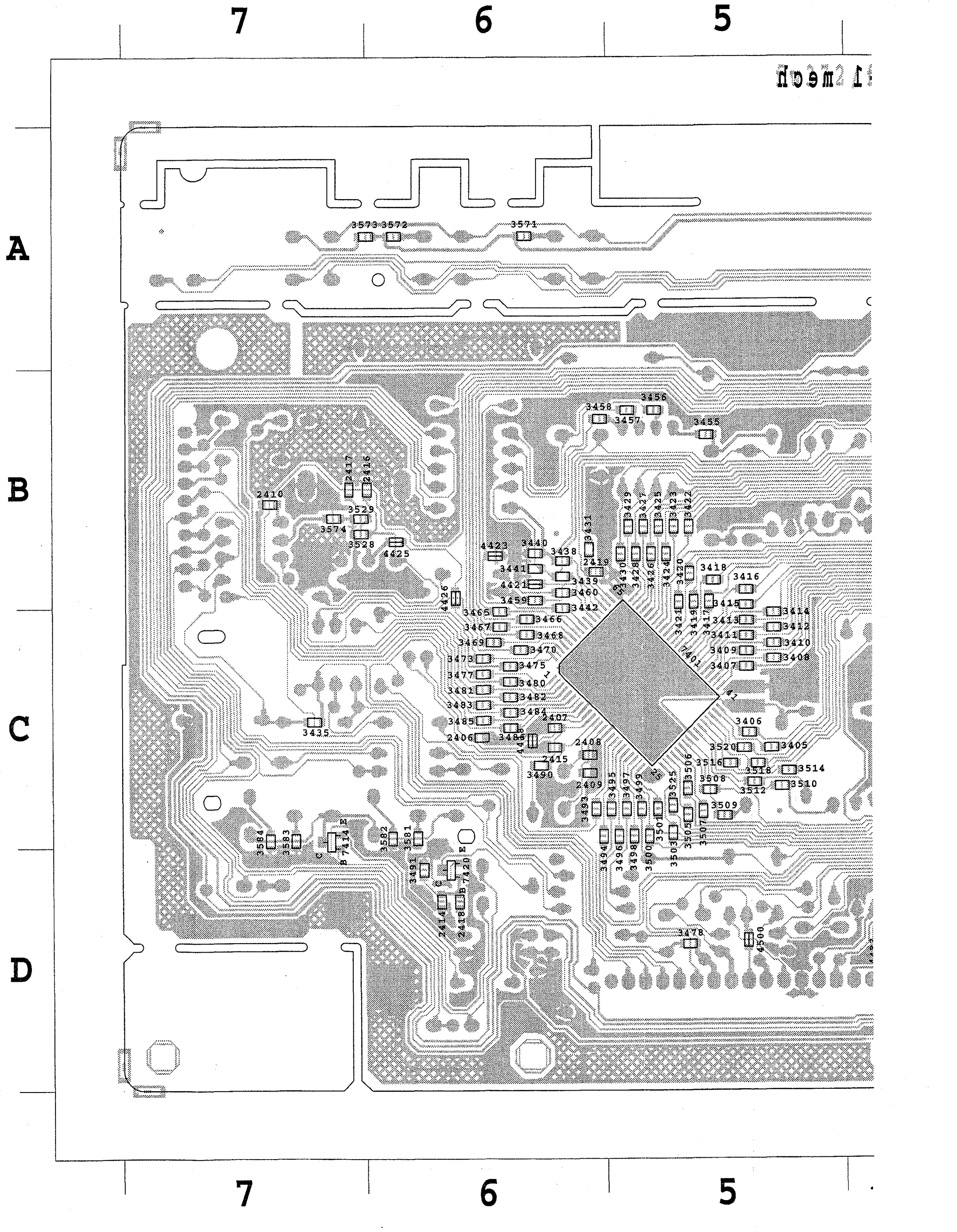
FRONT COMPONENT LAYOUT

22 C 4	1416 D 6	1428 C 3	1456 A 1	2441 C 2	3451 B 3	3594 C 4	6414 B 3	6446 B 3	6458 B 5	9409 D 6	9422 B 3	9435 D 4	9447 B 6	9459 B 6	9471 C 3	9483 B 1	9495 C 1
23 B 7	1417 B 5	1429 C 4	1458 B 7	2453 C 1	3452 B 3	3595 C 3	6415 B 3	6447 B 3	7403 C 2	9410 D 6	9423 B 5	9436 C 3	9448 B 6	9460 C 2	9472 C 3	9484 B 1	9496 C 1
24 C 1	1418 B 5	1430 C 4	1460 D 3	2454 B 1	3453 B 3	5401 B 4	6416 C 4	6448 B 4	7428 C 1	9411 B 1	9424 B 7	9437 D 4	9449 B 6	9461 B 2	9473 C 3	9485 C 2	9538 B 7
1400 B 3	1419 B 2	1431 D 5	1461 D 2	2459 B 7	3454 B 3	5402 C 6	6417 C 6	6449 B 4	9400 B 7	9412 D 5	9425 B 4	9438 D 5	9450 B 7	9462 B 2	9474 C 2	9486 B 2	9539 D 6
1401 D 5	1420 B 2	1432 D 4	2401 C 4	3403 B 4	3479 D 5	5403 C 2	6418 C 6	6450 B 3	9401 D 4	9413 C 5	9426 D 5	9439 B 5	9451 D 6	9463 B 2	9475 C 2	9487 B 1	9559 B 7
1404 A 1	1421 D 2	1433 D 5	2402 C 5	3404 B 4	3513 D 5	5406 C 5	6419 C 7	6451 B 3	9402 D 4	9415 B 5	9427 B 4	9440 B 4	9452 D 6	9464 B 2	9476 C 2	9488 C 2	----
1405 A 1	1422 D 2	1441 A 7	2403 C 2	3437 C 7	3527 D 6	5407 C 2	6420 C 7	6452 B 3	9403 C 4	9416 B 5	9428 C 4	9441 B 3	9453 D 6	9465 B 2	9477 C 2	9489 B 1	
1411 C 7	1423 D 1	1442 A 6	2425 A 1	3445 B 2	3542 D 3	5410 C 6	6421 A 6	6453 B 3	9404 D 6	9417 D 5	9430 B 4	9442 C 2	9454 D 6	9466 B 2	9478 B 2	9490 C 1	
1412 D 7	1424 B 1	1443 A 7	2426 A 5	3446 C 3	3545 D 3	6401 D 4	6422 A 6	6454 B 3	9405 C 6	9418 D 5	9431 B 4	9443 B 6	9455 B 7	9467 C 4	9479 B 2	9491 C 1	
1413 C 6	1425 D 3	1444 A 6	2438 B 7	3447 C 3	3580 D 6	6402 C 3	6423 A 7	6455 B 5	9406 C 7	9419 C 7	9432 D 6	9444 B 6	9456 C 7	9468 C 3	9480 C 3	9492 B 5	
1414 D 6	1426 D 3	1454 A 1	2439 D 2	3448 C 3	3591 B 1	6412 C 5	6425 D 4	6456 B 5	9407 C 6	9420 B 6	9433 B 2	9445 B 6	9457 C 6	9469 C 3	9481 C 1	9493 B 7	
1415 B 6	1427 C 2	1455 D 3	2440 D 3	3450 B 3	3592 A 5	6413 B 3	6445 B 3	6457 B 5	9408 C 6	9421 B 6	9434 B 1	9446 B 6	9458 C 7	9470 C 3	9482 C 3	9494 B 7	


1
2
3
4
5
6
7
A
B
C
D
fw372/fr2panel-p1-961002-1 mpch
3139 113 33581
fw372/fr2-p1-961002-1
3139 113 33581
DISC1
DISC2
DISC3
OPEN/CLOSE
TIMER
DEMO
R1
R2
3139 113 33581
fw372/fr2-p1-961002-1
C1
C2
C3
C4
L1
L2
JAZZ
ROCK
CLASSIC
POP
OPTIMAL
DB
ND
STDBY
CD
TUNER
TAPE
AUX
INC SOUND
3139 113 3358.1
fw372/fr2-p1-961002-1
flow direction

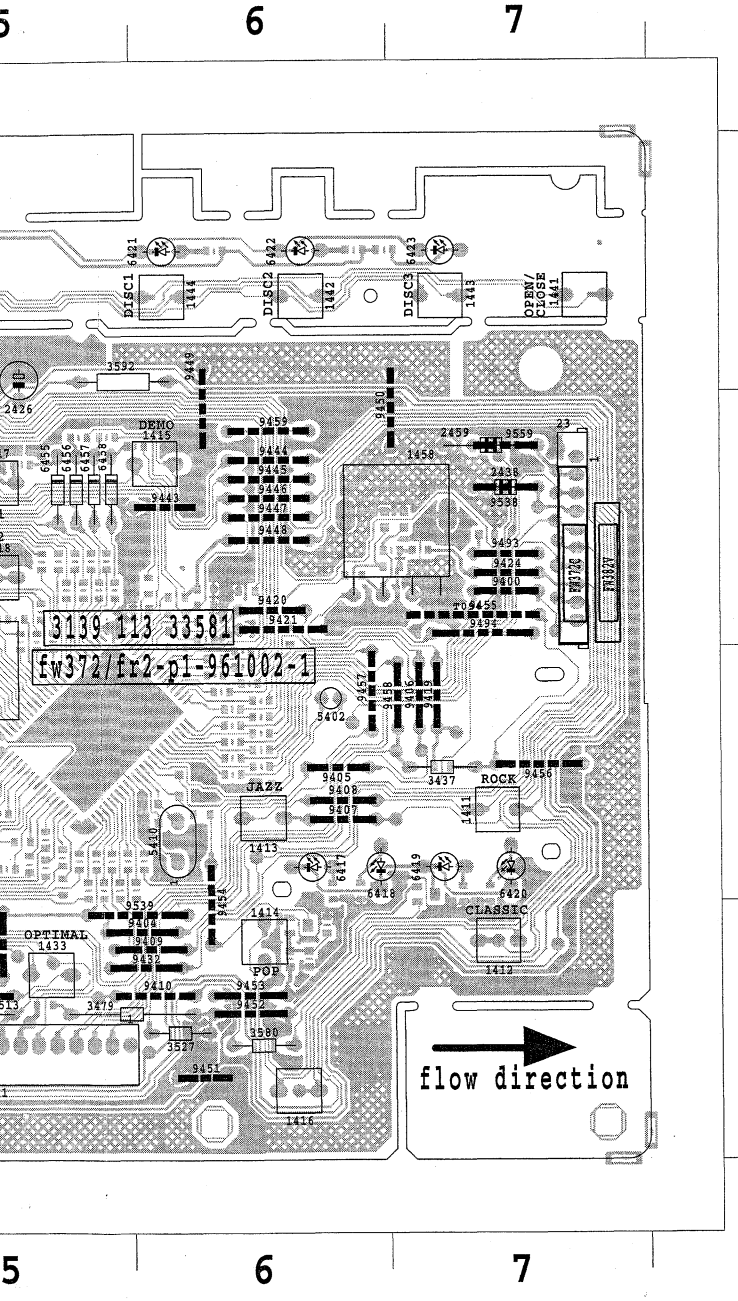
FRONT CHIP LAYOUT

2404 C 4	2416 B 6	2443 C 2	3407 C 5	3417 B 5	3427 B 5	3439 B 6	3458 B 6	3469 C
2406 C 6	2417 B 7	2444 C 2	3408 C 5	3418 B 5	3428 B 5	3440 B 6	3459 B 6	3470 C
2407 C 6	2418 D 6	2445 C 2	3409 C 5	3419 B 5	3429 B 5	3441 B 6	3460 B 6	3471 B
2408 C 6	2419 B 6	2446 B 2	3410 C 5	3420 B 5	3430 B 5	3442 C 6	3461 B 2	3472 B
2409 C 6	2420 C 2	2451 C 1	3411 C 5	3421 B 5	3431 B 6	3443 B 2	3462 B 2	3473 C
2410 B 7	2421 C 2	2452 B 1	3412 C 5	3422 B 5	3432 B 2	3444 D 4	3463 B 3	3475 C
2412 C 4	2422 B 2	2455 C 1	3413 C 5	3423 B 5	3433 B 2	3449 C 4	3465 C 6	3477 C
2413 C 4	2423 C 2	2458 B 1	3414 C 5	3424 B 5	3434 B 2	3455 B 5	3466 C 6	3478 D
2414 D 6	2424 B 3	3405 C 5	3415 B 5	3425 B 5	3435 C 7	3456 B 5	3467 C 6	3480 C
2415 C 6	2442 C 2	3406 C 5	3416 B 5	3426 B 5	3438 B 6	3457 B 5	3468 C 6	3481 C



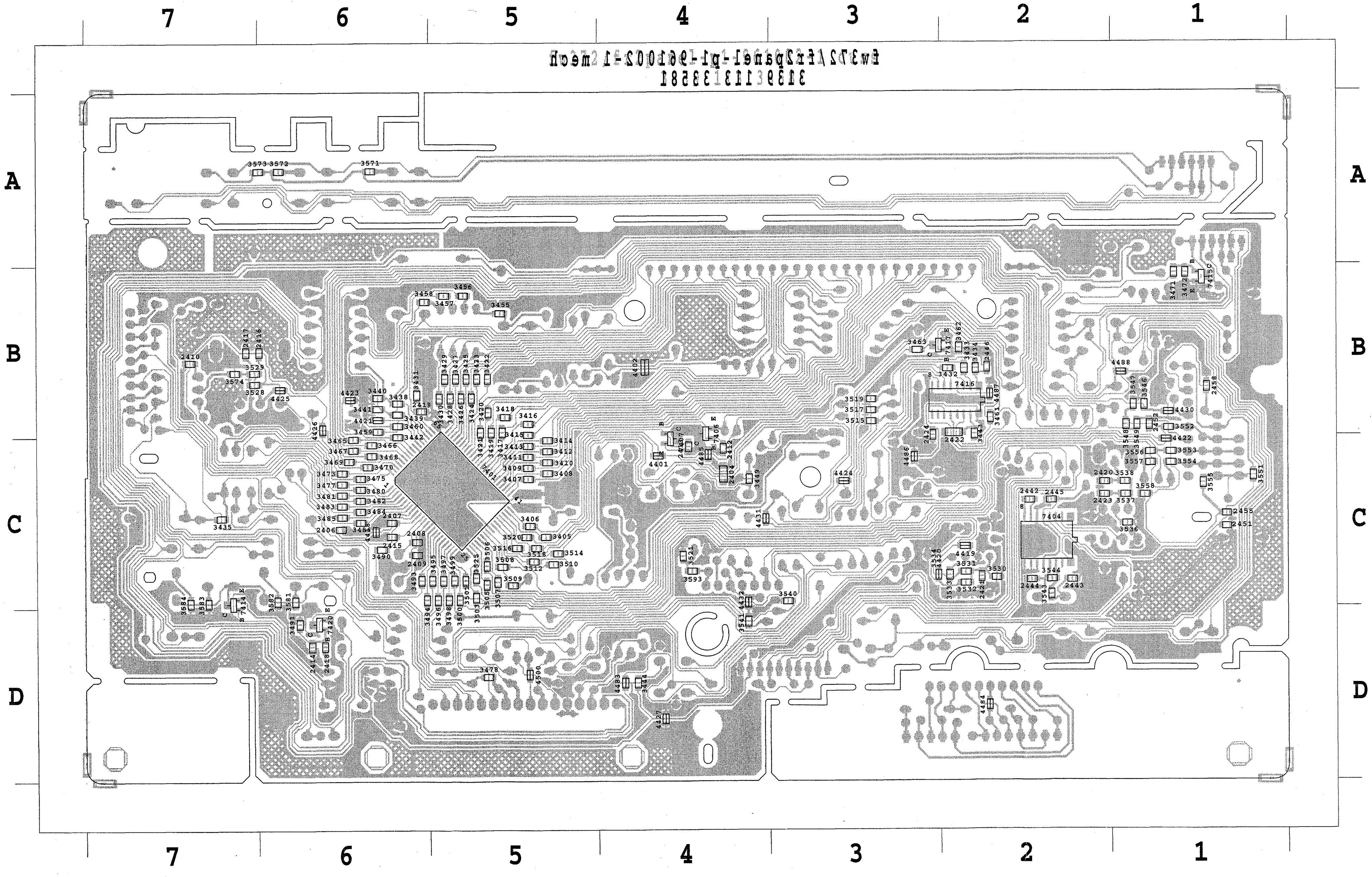
FRONT CHIP LAYOUT

135 D 4	9447 B 6	9459 B 6	9471 C 3	9483 B 1	9495 C 1
136 C 3	9448 B 6	9460 C 2	9472 C 3	9484 B 1	9496 C 1
137 D 4	9449 B 6	9461 B 2	9473 C 3	9485 C 2	9538 B 7
138 D 5	9450 B 7	9462 B 2	9474 C 2	9486 B 2	9539 D 6
139 B 5	9451 D 6	9463 B 2	9475 C 2	9487 B 1	9559 B 7
140 B 4	9452 D 6	9464 B 2	9476 C 2	9488 C 2	----
141 B 3	9453 D 6	9465 B 2	9477 C 2	9489 B 1	
142 C 2	9454 D 6	9466 B 2	9478 B 2	9490 C 1	
143 B 6	9455 B 7	9467 C 4	9479 B 2	9491 C 1	
144 B 6	9456 C 7	9468 C 3	9480 C 3	9492 B 5	
145 B 6	9457 C 6	9469 C 3	9481 C 1	9493 B 7	
146 B 6	9458 C 7	9470 C 3	9482 C 3	9494 B 7	



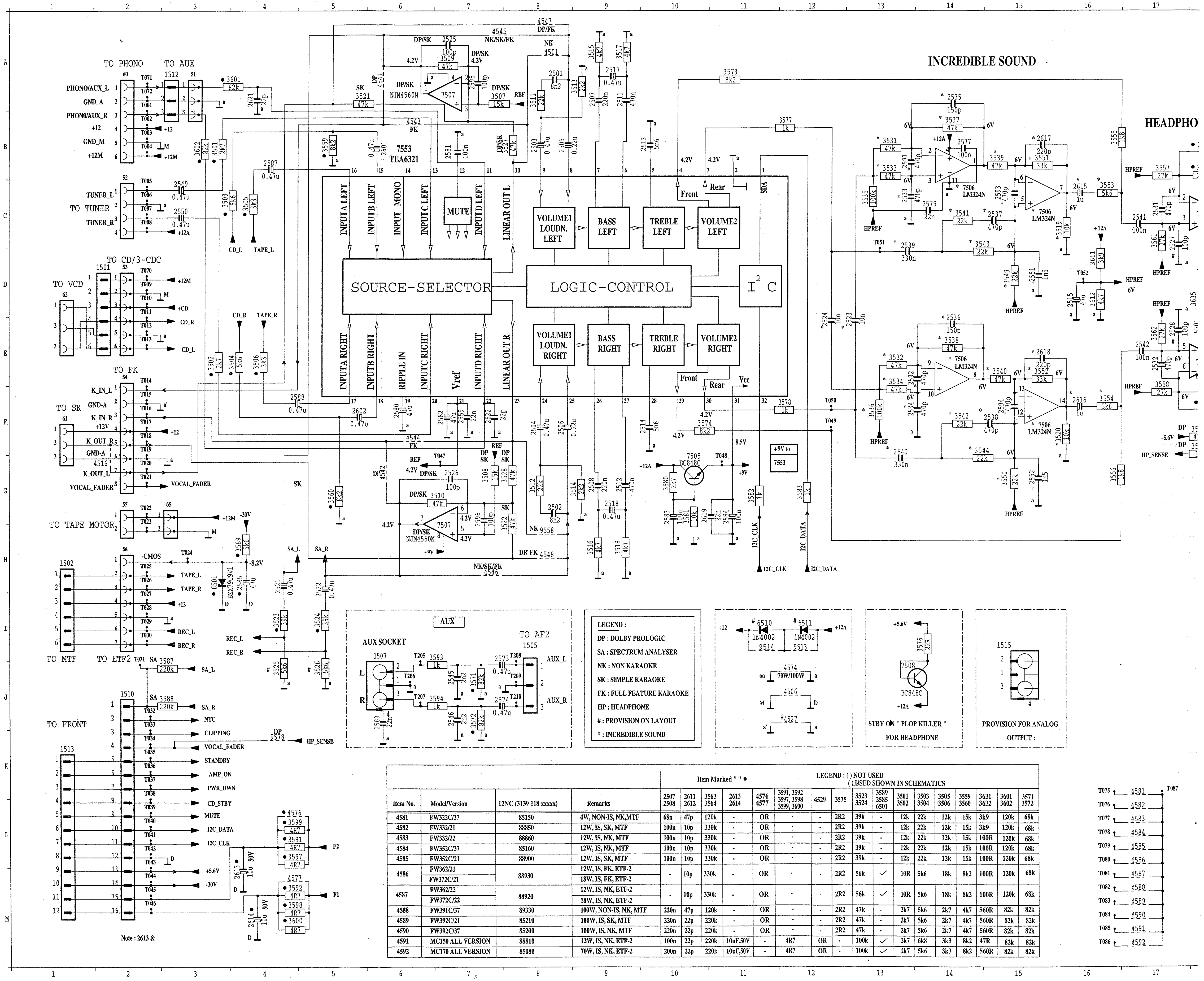
2404 C 4	2416 B 6	2443 C 2	3407 C 5	3417 B 5	3427 B 5	3439 B 6	3458 B 6	3469 C 6	3482 C 6	3496 C 5	3508 C 5	3520 C 5	3536 C 1	3549 B 1
2406 C 6	2417 B 7	2444 C 2	3408 C 5	3418 B 5	3428 B 5	3440 B 6	3459 B 6	3470 C 6	3483 C 6	3497 C 5	3509 C 5	3521 C 4	3537 C 1	3551 C 1
2407 C 6	2418 D 6	2445 C 2	3409 C 5	3419 B 5	3429 B 5	3441 B 6	3460 B 6	3471 B 1	3484 C 6	3498 C 5	3510 C 5	3525 C 5	3538 C 1	3552 B 1
2408 C 6	2419 B 6	2446 B 2	3410 C 5	3420 B 5	3430 B 5	3442 C 6	3461 B 2	3472 B 1	3485 C 6	3499 C 5	3512 C 5	3528 B 7	3540 C 3	3553 C 1
2409 C 6	2420 C 2	2451 C 1	3411 C 5	3421 B 5	3431 B 6	3443 B 2	3462 B 2	3473 C 6	3486 C 6	3500 C 5	3514 C 5	3529 B 7	3541 D 4	3554 C 1
2410 B 7	2421 C 2	2452 B 1	3412 C 5	3422 B 5	3432 B 2	3444 D 4	3463 B 3	3475 C 6	3490 C 6	3501 C 5	3515 B 3	3530 C 2	3543 C 2	3555 C 1
2412 C 4	2422 B 2	2455 C 1	3413 C 5	3423 B 5	3433 B 2	3449 C 4	3465 C 6	3477 C 6	3491 D 6	3503 C 5	3516 C 5	3531 C 2	3544 C 2	3556 C 1
2413 C 4	2423 C 2	2458 B 1	3414 C 5	3424 B 5	3434 B 2	3455 B 5	3466 C 6	3478 D 5	3493 C 6	3505 C 5	3517 B 3	3532 C 2	3546 B 1	3557 C 1
2414 D 6	2424 B 3	3405 C 5	3415 B 5	3425 B 5	3435 C 7	3456 B 5	3467 C 6	3480 C 6	3494 C 6	3506 C 5	3518 C 5	3533 C 2	3547 B 1	3558 C 1
2415 C 6	2442 C 2	3406 C 5	3416 B 5	3426 B 5	3438 B 6	3457 B 5	3468 C 6	3481 C 6	3495 C 5	3507 C 5	3519 B 3	3534 C 3	3548 B 1	3571 A 6

3572 A 6	4418 C 6	4430 B 1	7401 C 5	
3573 A 6	4419 C 2	4431 C 4	7404 C 2	
3574 B 7	4420 C 3	4432 C 4	7406 B 4	
3581 C 6	4421 B 6	4483 D 4	7407 C 4	
3582 C 6	4422 C 1	4484 D 2	7414 C 7	
3583 C 7	4423 B 6	4485 C 4	7415 B 1	
3584 C 7	4424 C 3	4486 C 3	7416 B 2	
3593 C 4	4425 B 6	4487 B 2	7417 B 3	
4401 C 4	4426 B 6	4488 B 1	7420 D 6	
4402 B 4	4427 D 4	4500 D 5	----	



AF2 CIRCUIT

1501 D 2	1515 I15	2508 G 9	2522 H 5	2532 E17	2541 C17	2550 C 3	2559 F 7	2583 G10	2594 F15	2612 F18	2621 A 4	3508 G 7	3517 A 9	3526 J 5	3535 C13	3544 F14	3553 C16	3562 E17	3571 J 7	3581 G10	3591 L 4	3600 M 4	4506 J12	4546 H 7	4584 L17	51 A
1502 H 1	1516 E21	2511 A 9	2523 E13	2533 C13	2542 E17	2551 D15	2573 I 7	2584 G11	2595 A 7	2613 M 4	2622 F 7	3509 A 7	3518 H 9	3527 B 8	3536 F13	3545 A20	3554 F16	3563 B18	3572 J 7	3582 G11	3592 M 4	3601 A 4	4516 G 2	4547 A 8	4585 L17	52 B
1505 I 8	2501 A 8	2512 G 9	2524 E12	2534 F13	2543 C19	2552 G15	2574 J 7	2585 H 4	2596 G 7	2614 M 4	3501 B 3	3510 G 7	3519 C16	3528 G 8	3537 B14	3546 A20	3555 B16	3564 F18	3573 A11	3583 G12	3593 I 7	3602 B 3	4527 J12	4548 H 8	4586 L17	53 D
1507 I 6	2502 G 8	2513 B10	2525 A 7	2535 A14	2544 F19	2553 G19	2575 C20	2587 B 4	2601 B 6	2615 C16	3502 E 3	3511 A 8	3520 F16	3529 F18	3538 E14	3547 B20	3556 G16	3565 C18	3574 F10	3584 B19	3594 J 7	3611 D16	4529 A19	4574 J12	4587 M17	54 E
1508 E21	2503 B 8	2514 F10	2526 G 7	2536 E14	2545 J 7	2554 G19	2577 B14	2588 F 4	2602 F 5	2616 F16	3503 C 3	3512 G 8	3521 A 5	3530 F18	3539 B15	3548 B21	3557 B17	3566 F18	3575 A19	3585 C20	3595 C21	3612 D16	4541 A 6	4576 L 4	4588 M17	55 G
1510 J 2	2504 F 8	2515 D16	2527 C17	2537 C15	2546 J 7	2555 F19	2579 C14	2589 J 6	2603 G18	2617 B15	3504 E 4	3513 A 9	3522 G 8	3531 B13	3540 E15	3549 D15	3558 F17	3567 C19	3576 I14	3586 C21	3596 C20	3631 G20	4542 G 6	4577 M 4	4589 M17	5501
1511 G21	2505 B 8	2517 A 9	2528 E17	2538 F15	2547 D21	2556 F19	2580 F 6	2591 B13	2609 D19	2618 E15	3505 C 4	3514 G 9	3523 I 4	3532 E13	3541 C14	3550 G15	3559 B 5	3568 F19	3577 B12	3587 J 3	3597 L 4	3632 G20	4543 B 6	4581 K17	4590 M17	5502
1512 A 3	2506 F 8	2518 G 9	2529 D18	2539 C13	2548 D21	2557 D20	2581 B 7	2592 E13	2610 E19	2619 G10	3506 E 4	3515 A 9	3524 I 5	3533 B13	3542 F14	3551 B15	3560 G 5	3569 D19	3578 F12	3588 J 3	3598 M 4	3635 D18	4544 F 6	4582 L17	4591 M17	5503
1513 K 1	2507 A 9	2521 H 4	2531 C17	2540 F13	2549 C 3	2558 D20	2582 F 7	2593 C15	2611 B18	2620 E18	3507 A 7	3516 H 9	3525 J 4	3534 E13	3543 C14	3552 E15	3561 C17	3570 E19	3580 G10	3589 H 4	3599 L 4	4501 A 8	4545 A 7	4583 L17	4592 M17	5504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INCREDIBLE SOUND
HEADPHO
TO PHONO
TO AUX
PHONO/AUX_L
GND_A
PHONO/AUX_R
+12
GND_M
+12M
TUNER_L
TO TUNER
TUNER_R
TO CD/3-CDC
TO VCD
+CD
CD_R
CD_L
TO FK
TO SK
K_IN_L
GND-A
K_IN_R
+12V
K_OUT_R
GND-A
K_OUT_L
VOCAL_FADER
TO TAPE MOTOR
-CMOS
TAPE_L
TAPE_R
REC_L
REC_R
TO MTF
TO ETF2
SA_L
SA_R
TO FRONT
NTC
CLIPPING
VOCAL_FADER
STANDBY
AMP_ON
PWR_DWN
CD_STBY
MUTE
I2C_DATA
I2C_CLK
+5.6V
-30V
HP_SENSE
Note : 2613 &
7553
TEA6321
7507
NJM4560M
INPUTA LEFT
INPUTB LEFT
INPUT MONO
INPUTC LEFT
MUTE
INPUTD LEFT
LINEAR OUT L
SOURCE-SELECTOR
LOGIC-CONTROL
I2C
VOLUME1 LOUDN. LEFT
BASS LEFT
TREBLE LEFT
VOLUME2 LEFT
VOLUME1 LOUDN. RIGHT
BASS RIGHT
TREBLE RIGHT
VOLUME2 RIGHT
INPUTA RIGHT
INPUTB RIGHT
RIPPLE IN
INPUTC RIGHT
Vref
INPUTD RIGHT
LINEAR OUT R
Front
Rear
SDA
Vcc
7506
LM324N
7505
BC848C
+9V to 7553
I2C_CLK
I2C_DATA
HPREF
AUX
AUX SOCKET
TO AF2
AUX_L
AUX_R
STBY ON " PLOP KILLER " FOR HEADPHONE
7508
BC848C
PROVISION FOR ANALOG OUTPUT :
1N4002
70W/100W

LEGEND :
DP : DOLBY PROLOGIC
SA : SPECTRUM ANALYSER
NK : NON KARAOKE
SK : SIMPLE KARAOKE
FK : FULL FEATURE KARAOKE
HP : HEADPHONE
: PROVISION ON LAYOUT
* : INCREDIBLE SOUND

				Item Marked " " ●						LEGEND : ( ) NOT USED (✓) USED SHOWN IN SCHEMATICS										
Item No.	Model/Version	12NC (3139 118 xxxxx)	Remarks	2507 2508	2611 2612	3563 3564	2613 2614	4576 4577	3591, 3592 3597, 3598 3599, 3600	4529	3575	3523 3524	3589 2585 6501	3501 3502	3503 3504	3505 3506	3559 3560	3631 3632	3601 3602	3571 3572
4581	FW322C/37	85150	4W, NON-IS, NK,MTF	68n	47p	120k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	3k9	120k	68k
4582	FW332/21	88850	12W, IS, SK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	3k9	120k	68k
4583	FW332/22	88860	12W, IS, NK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	68k
4584	FW352C/37	85160	12W, IS, NK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	68k
4585	FW352C/21	88900	12W, IS, SK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	68k
4586	FW362/21 FW372C/21	88930	12W, IS, FK, ETF-2 18W, IS, FK, ETF-2	-	10p	330k	-	OR	-	-	2R2	56k	✓	10R	5k6	18k	8k2	100R	120k	68k
4587	FW362/22 FW372C/22	88920	12W, IS, NK, ETF-2 18W, IS, NK, ETF-2	-	10p	330k	-	OR	-	-	2R2	56k	✓	10R	5k6	18k	8k2	100R	120k	68k
4588	FW391C/37	89330	100W, NON-IS, NK, MTF	220n	47p	120k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4589	FW392C/21	85210	100W, IS, SK, MTF	220n	22p	220k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4590	FW392C/37	85200	100W, IS, NK, MTF	220n	22p	220k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4591	MC150 ALL VERSION	88810	12W, IS, NK, ETF-2	100n	22p	220k	10uF,50V	-	4R7	OR	-	100k	✓	2k7	6k8	3k3	8k2	47R	82k	82k
4592	MC170 ALL VERSION	85080	70W, IS, NK, ETF-2	200n	22p	220k	10uF,50V	-	4R7	OR	-	100k	✓	2k7	5k6	3k3	8k2	560R	82k	82k

2550	C 3
2551	D15
2552	G15
2553	G19
2554	G19
2555	F19
2556	F19
2557	D20
2558	D20
2559	F 7
2573	I 7
2574	J 7
2575	C20
2577	B14
2579	C14
2580	F 6
2581	B 7
2582	F 7
2583	G10
2584	G11
2585	H 4
2587	B 4
2588	F 4
2589	J 6
2591	B13
2592	E13
2593	C15
2594	F15
2595	A 7
2596	G 7
2601	B 6
2602	F 5
2603	G18
2609	D19
2610	E19
2611	B18
2612	F18
2613	M 4
2614	M 4
2615	C16
2616	F16
2617	B15
2618	E15
2619	G10
2620	E18
2621	A 4
2622	F 7
3501	B 3
3502	E 3
3503	C 3
3504	E 4
3505	C 4
3506	E 4
3507	A 7
3508	G 7
3509	A 7
3510	G 7
3511	A 8
3512	G 8
3513	A 9
3514	G 9
3515	A 9
3516	H 9
3517	A 9
3518	H 9
3519	C16
3520	F16
3521	A 5
3522	G 8
3523	I 4
3524	I 5
3525	J 4
3526	J 5
3527	B 8
3528	G 8
3529	F18
3530	F18
3531	B13
3532	E13
3533	B13
3534	E13
3535	C13
3536	F13
3537	B14
3538	E14
3539	B15
3540	E15
3541	C14
3542	F14
3543	C14
3544	F14
3545	A20
3546	A20
3547	B20
3548	B21
3549	D15
3550	G15
3551	B15
3552	E15
3553	C16
3554	F16
3555	B16
3556	G16
3557	B17
3558	F17
3559	B 5
3560	G 5
3561	C17
3562	E17
3563	B18
3564	F18
3565	C18
3566	F18
3567	C19
3568	F19
3569	D19
3570	E19
3571	J 7
3572	J 7
3573	A11
3574	F10
3575	A19
3576	I14
3577	B12
3578	F12
3580	G10
3581	G10
3582	G11
3583	G12
3584	B19
3585	C20
3586	C21
3587	J 3
3588	J 3
3589	H 4
3591	L 4
3592	M 4
3593	I 7
3594	J 7
3595	C21
3596	C20
3597	L 4
3598	M 4
3599	L 4
3600	M 4
3601	A 4
3602	B 3
3611	D16
3612	D16
3631	G20
3632	G20
3635	D18
4501	A 8
4506	J12
4516	G 2
4527	J12
4529	A19
4541	A 6
4542	G 6
4543	B 6
4544	F 6
4545	A 7
4546	H 7
4547	A 8
4548	H 8
4574	J12
4576	L 4
4577	M 4
4581	K17
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4585	L17
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4591	M17
4592	M17
51	A 3
52	B 2
53	D 2
54	E 2
55	G 2
5501	E18
5502	D21
5503	F20
5504	E20
56	H 2
57	H21
58	K21
59	K21
60	A 2
61	F 1
62	D 1
65	G 3
6501	H 3
6510	I11
6511	I12
7501	C18
7501	E18
7503	D19
7504	E19
7505	G10
7506	C14
7506	C15
7506	E14
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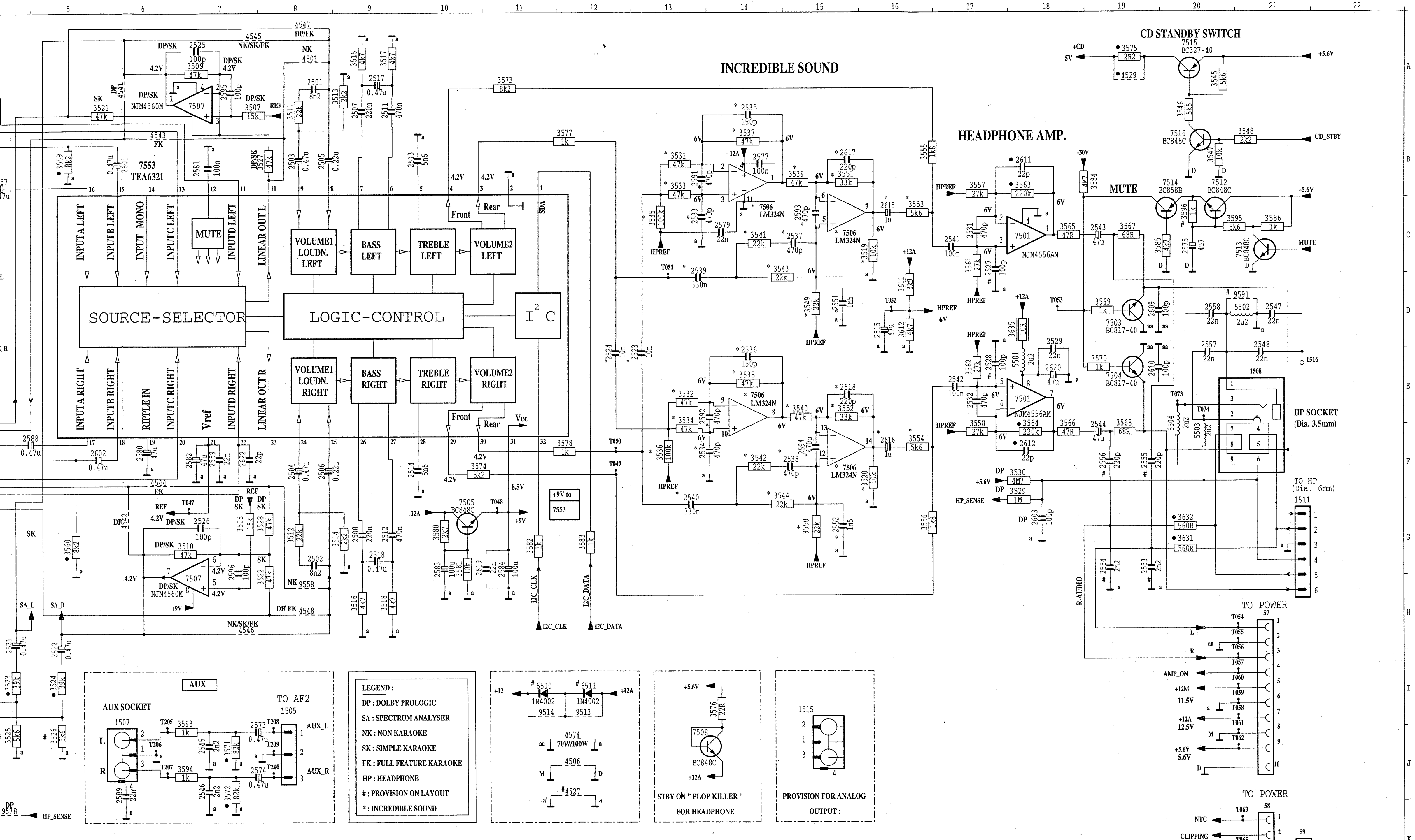
9578	K 4
9591	D21



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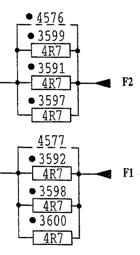
L
M
INCREDIBLE SOUND
HEADPHONE AMP.
CD STANDBY SWITCH
MUTE
7553
TEA6321
INPUTA LEFT
INPUTB LEFT
INPUT MONO
INPUTC LEFT
MUTE
INPUTD LEFT
LINEAR OUT L
VOLUME1 LOUDN. LEFT
BASS LEFT
TREBLE LEFT
VOLUME2 LEFT
SOURCE-SELECTOR
LOGIC-CONTROL
I2C
VOLUME1 LOUDN. RIGHT
BASS RIGHT
TREBLE RIGHT
VOLUME2 RIGHT
INPUTA RIGHT
INPUTB RIGHT
RIPPLE IN
INPUTC RIGHT
Vref
INPUTD RIGHT
LINEAR OUT R
Front
Rear
SDA
Vcc
NJM4560M
LM324N
NJM4556AM
BC327-40
BC848C
BC858B
BC817-40
+5.6V
CD_STBY
MUTE
HPREF
HP_SENSE
I2C_CLK
I2C_DATA
HP SOCKET (Dia. 3.5mm)
TO HP (Dia. 6mm)
TO POWER
AMP_ON
+12M
11.5V
+12A
12.5V
+5.6V
5.6V
NTC
CLIPPING
STANDBY
F1
F2
-30V
PWR_DWN
AUX
AUX SOCKET
TO AF2
AUX_L
AUX_R
LEGEND :
DP : DOLBY PROLOGIC
SA : SPECTRUM ANALYSER
NK : NON KARAOKE
SK : SIMPLE KARAOKE
FK : FULL FEATURE KARAOKE
HP : HEADPHONE
# : PROVISION ON LAYOUT
* : INCREDIBLE SOUND
1N4002
70W/100W
STBY ON " PLOP KILLER " FOR HEADPHONE
PROVISION FOR ANALOG OUTPUT :

				Item Marked " " ●								LEGEND : ( ) NOT USED (✓) USED SHOWN IN SCHEMATICS								
Item No.	Model/Version	12NC (3139 118 xxxxx)	Remarks	2507 2508	2611 2612	3563 3564	2613 2614	4576 4577	3591, 3592 3597, 3598 3599, 3600	4529	3575	3523 3524	3589 2585 6501	3501 3502	3503 3504	3505 3506	3559 3560	3631 3632	3601 3602	3571 3572
4581	FW322C/37	85150	4W, NON-IS, NK,MTF	68n	47p	120k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	3k9	120k	68k
4582	FW332/21	88850	12W, IS, SK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	3k9	120k	68k
4583	FW332/22	88860	12W, IS, NK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	68k
4584	FW352C/37	85160	12W, IS, NK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	68k
4585	FW352C/21	88900	12W, IS, SK, MTF	100n	10p	330k	-	OR	-	-	2R2	39k	-	12k	22k	12k	15k	100R	120k	68k
4586	FW362/21 FW372C/21	88930	12W, IS, FK, ETF-2 18W, IS, FK, ETF-2	-	10p	330k	-	OR	-	-	2R2	56k	✓	10R	5k6	18k	8k2	100R	120k	68k
4587	FW362/22 FW372C/22	88920	12W, IS, NK, ETF-2 18W, IS, NK, ETF-2	-	10p	330k	-	OR	-	-	2R2	56k	✓	10R	5k6	18k	8k2	100R	120k	68k
4588	FW391C/37	89330	100W, NON-IS, NK, MTF	220n	47p	120k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4589	FW392C/21	85210	100W, IS, SK, MTF	220n	22p	220k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4590	FW392C/37	85200	100W, IS, NK, MTF	220n	22p	220k	-	OR	-	-	2R2	47k	-	2k7	5k6	2k7	4k7	560R	82k	82k
4591	MC150 ALL VERSION	88810	12W, IS, NK, ETF-2	100n	22p	220k	10uF,50V	-	4R7	OR	-	100k	✓	2k7	6k8	3k3	8k2	47R	82k	82k
4592	MC170 ALL VERSION	85080	70W, IS, NK, ETF-2	200n	22p	220k	10uF,50V	-	4R7	OR	-	100k	✓	2k7	5k6	3k3	8k2	560R	82k	82k



4576
3599
4R7
3591
4R7
3597
4R7
F2
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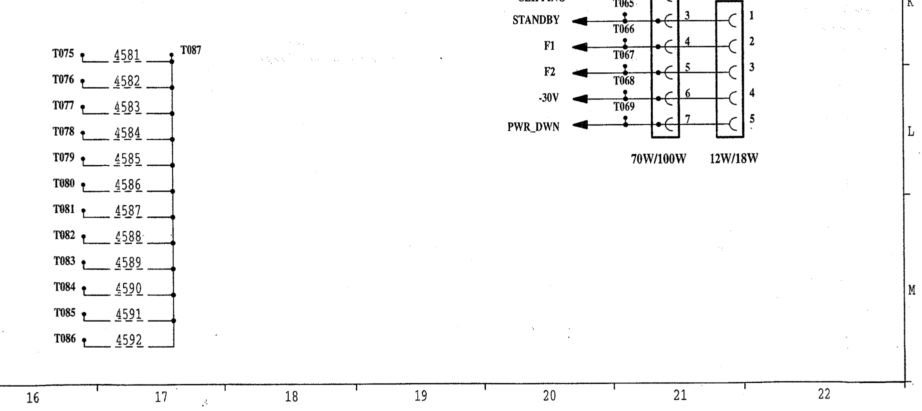
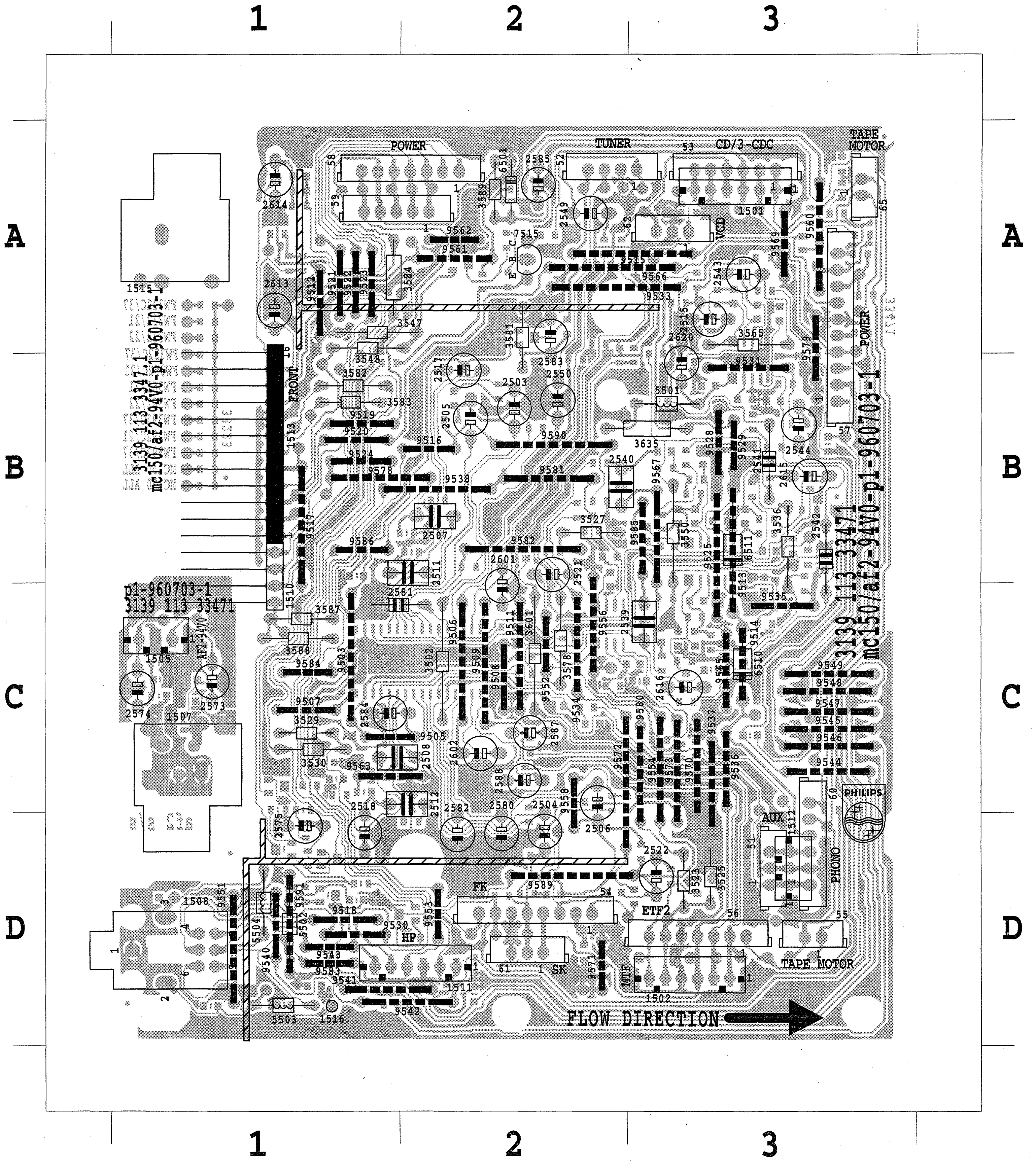
3592
4R7
3598
4R7
3600
4R7
F1



T075 4581
T076 4582
T077 4583
T078 4584
T079 4585
T080 4586
T081 4587
T082 4588
T083 4589
T084 4590
T085 4591
T086 4592
T087
70W/100W
12W/18W

PCS 96 817

AF2 COMPONENT LAYOUT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2
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A
B
C
D
POWER
TUNER
CD/3-CDC
TAPE MOTOR
VCD
POWER
FRONT
3139 113 3347-1
mc150/af2-94V0-p1-960703-1
p1-960703-1
3139 113 33471
AF2-94V0
FK
ETF2
HP
SK
MTF
AUX
PHONO
PHILIPS
TAPE MOTOR
FLOW DIRECTION

51	D	3
52	A	2
53	A	3
54	D	2
55	D	3
56	D	3
57	A	3
58	A	2
59	A	1
60	D	3
61	D	2
62	A	3
65	A	3
1501	A	3
1502	D	3
1505	C	1
1507	C	1
1508	D	1
1510	B	1
1511	D	2
1512	D	3
1513	B	1
1515	A	1
1516	D	1
2503	B	2
2504	D	2
2505	B	2
2506	C	2
2507	B	2
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2542	B	3
2543	A	3
2544	B	3
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2574	C	1
2575	D	1
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2581	C	1
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3550	B	3
3565	A	3
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3583	B	1
3584	A	1
3587	C	1
3588	C	1
3589	A	2
3601	C	2
3635	B	3
5501	B	3
5502	D	1
5503	D	1
5504	D	1
6501	A	2
6510	C	3
6511	B	3
7515	A	2
9503	C	1
9505	C	1
9506	C	2
9507	C	1
9508	C	2
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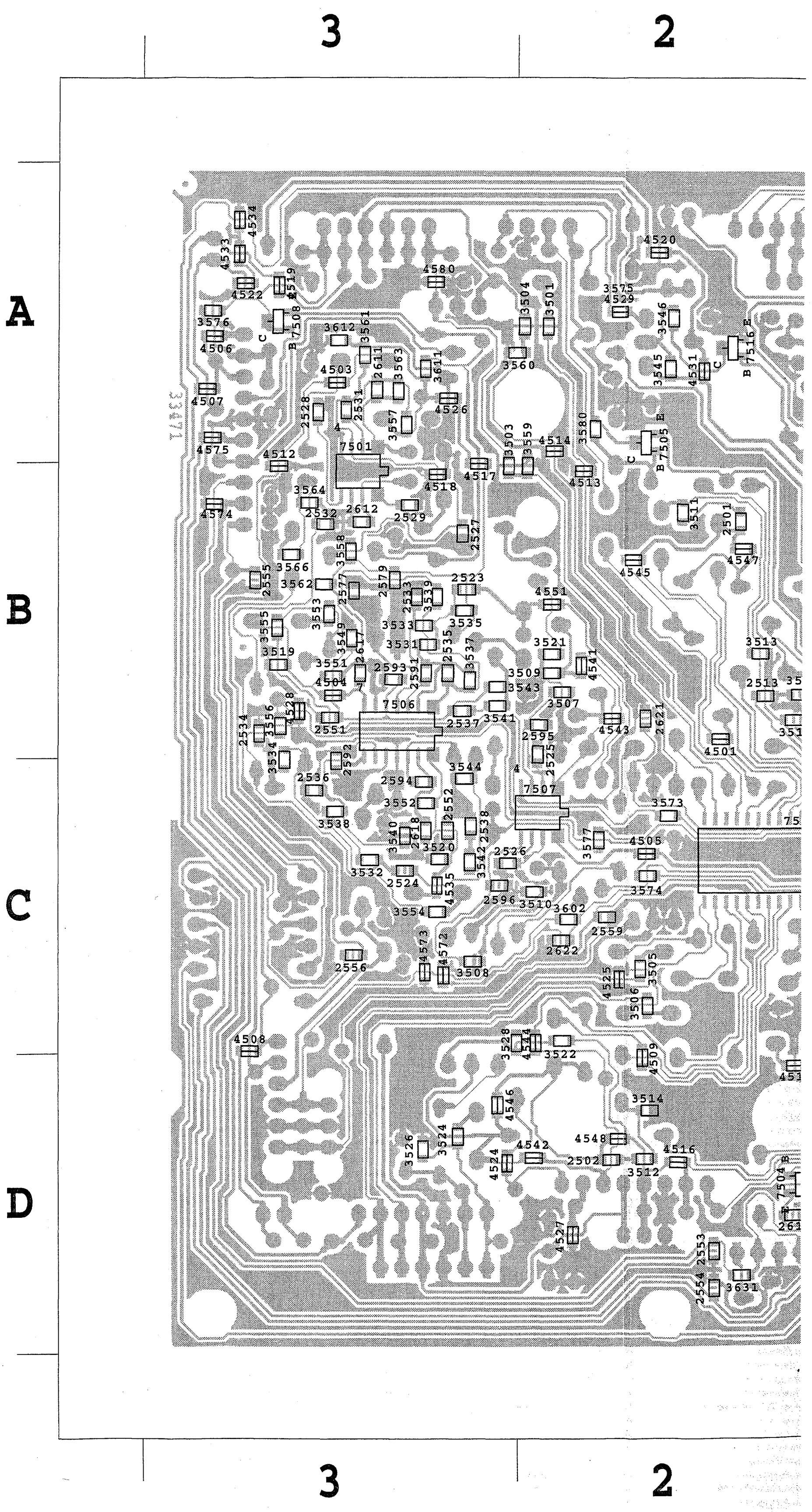
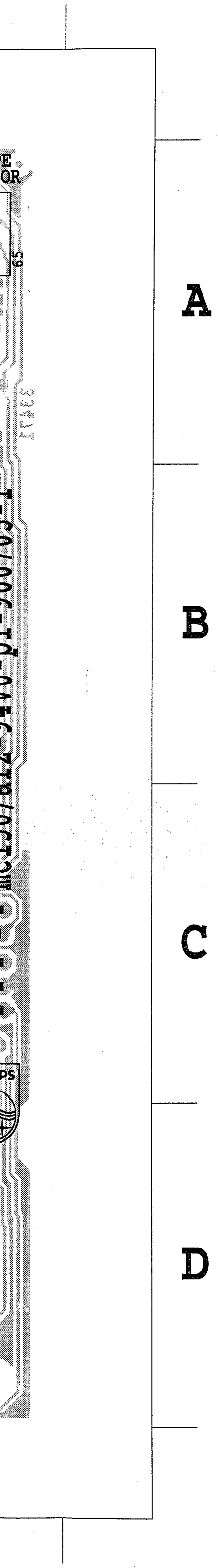
9511	C	2
9512	A	1
9513	B	3
9514	C	3
9515	A	3
9516	B	2
9517	B	1
9518	D	1
9519	B	1
9520	B	1
9521	A	1
9522	A	1
9523	A	1
9524	B	1
9525	B	3
9528	B	3
9529	B	3
9530	D	1
9531	B	3
9533	A	2
9534	C	2
9535	C	3
9536	C	3
9537	C	3
9538	B	2
9540	D	1
9541	D	1
9542	D	2
9543	D	1
9544	C	3
9545	C	3
9546	C	3
9547	C	3
9548	C	3
9549	C	3
9551	D	1
9552	C	2
9553	D	2
9554	C	3
9556	C	2
9558	C	2
9560	A	3
9561	A	2
9562	A	2
9563	C	1
9565	C	3
9566	A	2
9567	B	3
9569	A	3
9570	C	3
9571	D	2
9572	C	2
9573	C	3
9578	B	1
9579	A	3
9580	C	3
9581	B	2
9582	B	2
9583	D	1
9584	C	1
9585	B	3
9586	B	1
9589	D	2
9590	B	2
9591	D	1

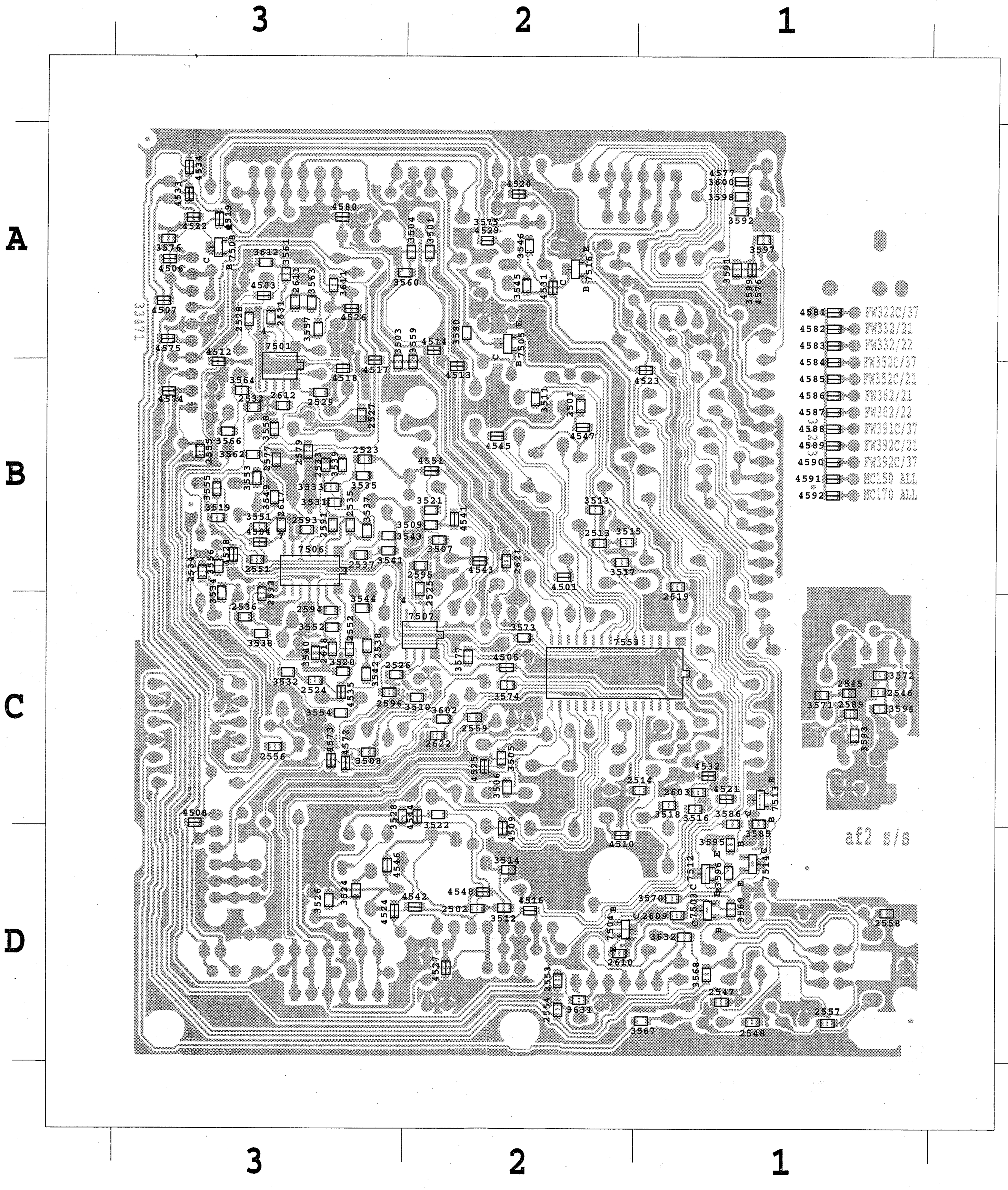
AF2 CHIP LAYOUT


3
2
A
B
C
D
33471



51	D	3
52	A	2
53	A	3
54	D	2
55	D	3
56	D	3
57	A	3
58	A	2
59	A	1
60	D	3
61	D	2
62	A	3
65	A	3
1501	A	3
1502	D	3
1505	C	1
1507	C	1
1508	D	1
1510	B	1
1511	D	2
1512	D	3
1513	B	1
1515	A	1
1516	D	1
2503	B	2
2504	D	2
2505	B	2
2506	C	2
2507	B	2
2508	C	1
2511	B	2
2512	C	2
2515	A	3
2517	B	2
2518	D	1
2521	B	2
2522	D	3
2539	C	3
2540	B	2
2541	B	3
2542	B	3
2543	A	3
2544	B	3
2549	A	2
2550	B	2
2573	C	1
2574	C	1
2575	D	1
2580	D	2
2581	C	1
2582	D	2
2583	A	2
2584	C	1
2585	A	2
2587	C	2
2588	C	2
2601	C	2
2602	C	2
2613	A	1
2614	A	1
2615	B	3
2616	C	3
2620	B	3
3502	C	2
3523	D	3
3525	D	3
3527	B	2
3529	C	1
3530	C	1
3536	B	3
3547	A	1
3548	A	1
3550	B	3
3565	A	3
3578	C	2
3581	A	2
3582	B	1
3583	B	1
3584	A	1
3587	C	1
3588	C	1
3589	A	2
3601	C	2
3635	B	3
5501	B	3
5502	D	1
5503	D	1
5504	D	1
6501	A	2
6510	C	3
6511	B	3
7515	A	2
9503	C	1
9505	C	1
9506	C	2
9507	C	1
9508	C	2
9509	C	2
9511	C	2
9512	A	1
9513	B	3
9514	C	3
9515	A	3
9516	B	2
9517	B	1
9518	D	1
9519	B	1
9520	B	1
9521	A	1
9522	A	1
9523	A	1
9524	B	1
9525	B	3
9528	B	3
9529	B	3
9530	D	1
9531	B	3
9533	A	2
9534	C	2
9535	C	3
9536	C	3
9537	C	3
9538	B	2
9540	D	1
9541	D	1
9542	D	2
9543	D	1
9544	C	3
9545	C	3
9546	C	3
9547	C	3
9548	C	3
9549	C	3
9551	D	1
9552	C	2
9553	D	2
9554	C	3
9556	C	2
9558	C	2
9560	A	3
9561	A	2
9562	A	2
9563	C	1
9565	C	3
9566	A	2
9567	B	3
9569	A	3
9570	C	3
9571	D	2
9572	C	2
9573	C	3
9578	B	1
9579	A	3
9580	C	3
9581	B	2
9582	B	2
9583	D	1
9584	C	1
9585	B	3
9586	B	1
9589	D	2
9590	B	2
9591	D	1

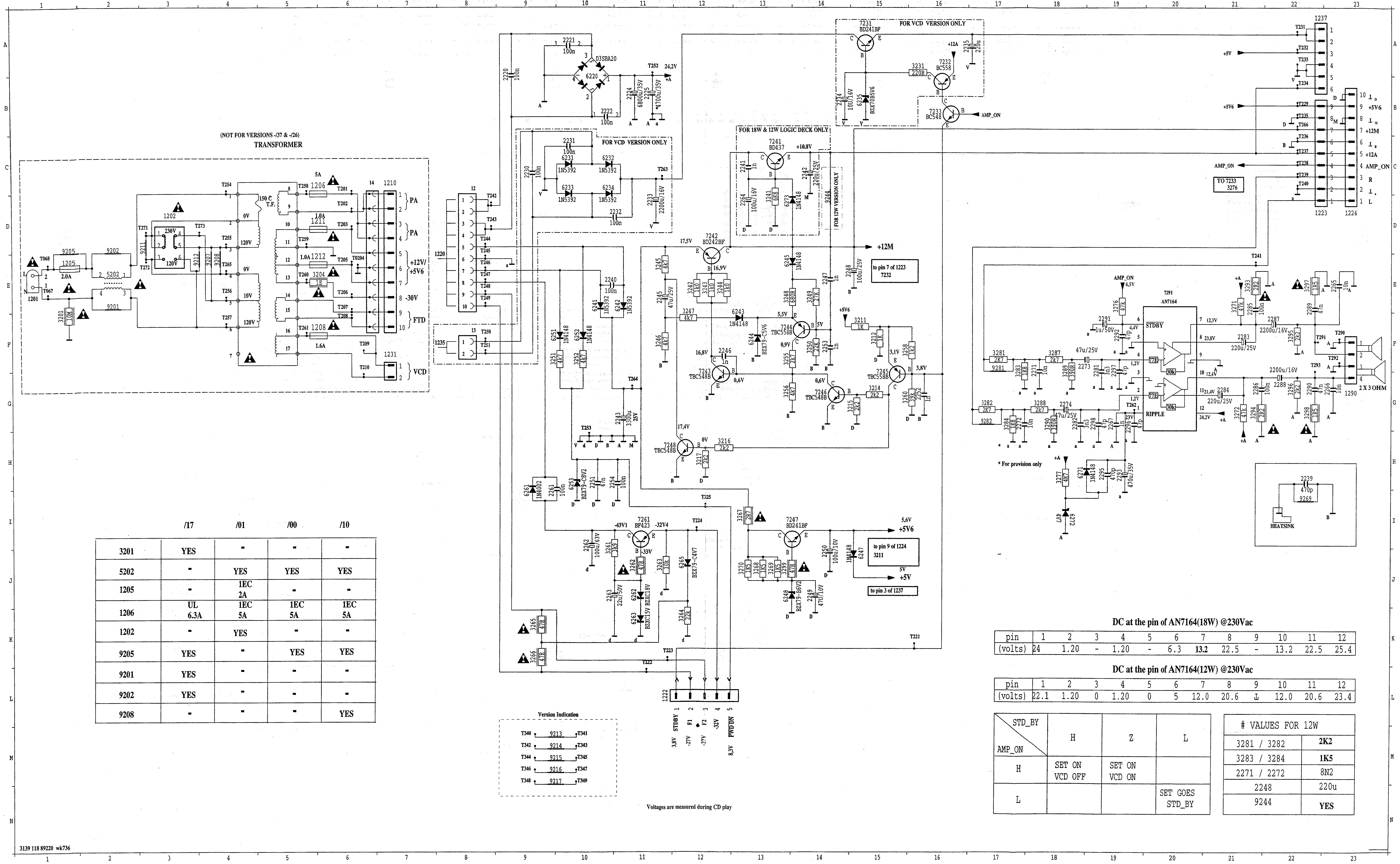
AF2 CHIP LAYOUT



2501	B	2
2502	D	2
2513	B	2
2514	C	1
2523	B	3
2524	C	3
2525	B	2
2526	C	3
2527	B	3
2528	A	3
2529	B	3
2531	A	3
2532	B	3
2533	B	3
2534	B	3
2535	B	3
2536	C	3
2537	B	3
2538	C	3
2545	C	1
2546	C	1
2547	D	1
2548	D	1
2551	B	3
2552	C	3
2553	D	2
2554	D	2
2555	B	3
2556	C	3
2557	D	1
2558	D	1
2559	C	2
2577	B	3
2579	B	3
2589	C	1
2591	B	3
2592	C	3
2593	B	3
2594	C	3
2595	B	2
2596	C	3
2603	C	1
2609	D	1
2610	D	2
2611	A	3
2612	B	3
2617	B	3
2618	C	3
2619	B	1
2621	B	2
2622	C	2
3501	A	2
3503	B	3
3504	A	2
3505	C	2
3506	C	2
3507	B	2
3508	C	3
3509	B	2
3510	C	2
3511	B	2
3512	D	2
3513	B	2
3514	D	2
3515	B	2
3516	C	1
3517	B	2
3518	C	1
3519	B	3
3520	C	3
3521	B	2
3522	C	2
3524	D	3
3526	D	3
3528	C	3
3531	B	3
3532	C	3
3533	B	3
3534	C	3
3535	B	3
3537	B	3
3538	C	3
3539	B	3
3540	C	3
3541	B	3
3542	C	3
3543	B	3
3544	C	3
3545	A	2
3546	A	2
3549	B	3
3551	B	3
3552	C	3
3553	B	3
3554	C	3
3555	B	3
3556	B	3
3557	A	3
3558	B	3
3559	B	2
3560	A	3
3561	A	3
3562	B	3
3563	A	3
3564	B	3
3566	B	3
3567	D	1
3568	D	1
3569	D	1
3570	D	1
3571	C	1
3572	C	1
3573	C	2
3574	C	2
3575	A	2
3576	A	3
3577	C	2
3580	A	2
3585	C	1
3586	C	1
3591	A	1
3592	A	1
3593	C	1
3594	C	1
3595	D	1
3596	D	1
3597	A	1
3598	A	1
3599	A	1
3600	A	1
3602	C	2
3611	A	3
3612	A	3
3631	D	2
3632	D	1
4501	B	2
4503	A	3
4504	B	3
4505	C	2
4506	A	3
4507	A	3
4508	C	3
4509	D	2
4510	D	2
4512	B	3
4513	B	2
4514	A	2
4516	D	2
4517	B	3
4518	B	3
4519	A	3
4520	A	2
4521	C	1
4522	A	3
4523	B	1
4524	D	3
4525	C	2
4526	A	3
4527	D	2
4528	B	3
4529	A	2
4531	A	2
4532	C	1
4533	A	3
4534	A	3
4535	C	3
4541	B	2
4542	D	2
4543	B	2
4544	C	2
4545	B	2
4546	D	3
4547	B	2
4548	D	2
4551	B	2
4572	C	3
4573	C	3
4574	B	3
4575	A	3
4576	A	1
4577	A	1
4580	A	3
4581	A	1
4582	A	1
4583	A	1
4584	B	1
4585	B	1
4586	B	1
4587	B	1
4588	B	1
4589	B	1
4590	B	1
4591	B	1
4592	B	1
7501	B	3
7503	D	1
7504	D	2
7505	A	2
7506	B	3
7507	C	2
7508	A	3
7512	D	1
7513	C	1
7514	D	1
7516	A	2
7553	C	2

POWER 2VA CIRCUIT

12	C 8
1201	E 1
1202	D 3
1205	E 1
1206	C 6
1208	F 6
1210	C 7
1211	D 6
1212	E 6
1222	L11
1223	D22
1224	D23
1231	F 7
1237	A22
1290	G23
13	F 8
14	C 6
2220	A 9
2221	A10
2222	B10
2224	B11
2225	B11
2230	C 9
2231	C10
2232	D11
2233	D11
2234	B14
2235	A16
2239	H22
2240	E10
2241	C13
2242	C14
2243	G11
2245	E11
2246	F12
2247	E14
2248	E14
2249	J14
2250	J14
2251	H10
2252	G16
2253	F14
2254	H10
2261	I 9
2262	I10
2263	J10
2264	D13
2265	E23
2266	G23
2267	G19
2271	F18
2272	G17
2273	F18
2274	G18
2281	F19
2282	G18
2283	F21
2284	G21
2285	E21
2286	G21
2287	F22
2288	G22
2289	E22
2290	G22
2291	F19
2292	F19
2293	H19
2295	H19
2296	G19
2297	F19
2298	G19
3201	F 1
3204	E 6
3211	F15
3212	F15
3214	G15
3215	G15
3216	H12
3217	H12
3231	A16
3241	D13
3242	E12
3243	E12
3244	E12
3245	E11
3246	F11
3247	F12
3248	E13
3249	E14
3250	F14
3251	F 9
3252	F10
3255	F13
3256	G13
3258	F15
3260	G15
3261	I10
3262	J11
3263	J11
3264	K12
3265	K 9
3266	K 9
3267	I13
3268	J13
3269	J13
3270	J13
3271	E21
3272	G21
3276	E19
3277	H18
3281	F17
3282	G17
3283	F17
3284	G17
3287	F18
3288	G18
3289	F18
3290	G18
3293	E21
3294	G21
3295	F22
3296	G22
3297	E22
3298	G22
3299	J13
5202	E 2
6220	A10
6231	C10
6232	C10
6233	C10
6234	C10
6235	B15
6241	E10
6242	E11
6243	F13
6244	F13
6245	E13
6247	J15
6248	J13
6251	F 9
6252	F10
6253	H10
6261	I 9
6262	J11
6263	K11
6265	J12
6271	H18
6272	I18
6273	D13
7231	A15
7232	A16
7233	B16
7241	C13
7242	D12
7243	G12
7244	F13
7245	G15
7246	G14
7247	I13
7248	H12
7261	I11
7291	E20
9201	E 2
9202	D 2
9205	D 1
9207	E 4
9208	E 4
9211	D 3
9212	E 3
9213	M 9
9214	M 9
9215	M 9
9216	M 9
9217	M 9
9244	D14
9269	I22
9281	F17
9282	G17


(NOT FOR VERSIONS -/37 & -/26)
TRANSFORMER
FOR VCD VERSION ONLY
FOR 18W & 12W LOGIC DECK ONLY
FOR 12W VERSION ONLY
D3SBA20
T252 24,2V
+A
1210
PA
PA
+12V/ +5V6
-30V
FTD
VCD
1220
1235
1231
7231 BD241BF
7232 BC558
7233 BC548
AMP_ON
7241 BD437
+10.8V
7242 BD242BF
+12M
to pin 7 of 1223 7232
7243 TBC548B
7244 TBC558B
7245 TBC558B
7246 TBC548B
7248 TBC548B
7261 BF423
-43V1
-32V4
7247 BD241BF
+5V6
to pin 9 of 1224 3211
+5V
to pin 3 of 1237
7291 AN7164
STDBY
RIPPLE
2 X 3 OHM
1290
HEATSINK
* For provision only
1237
1223
1224
+5V
+5V6
+12M
+12A
AMP_ON
R
L
TO 7233 3276
1222
STDBY
F1
F2
-32V
PWD DN
3,8V
-27V
-27V
8,3V
Version Indication
T340 9213 T341
T342 9214 T343
T344 9215 T345
T346 9216 T347
T348 9217 T349

Voltages are measured during CD play

	/17	/01	/00	/10
3201	YES	-	-	-
5202	-	YES	YES	YES
1205	-	1EC 2A	-	-
1206	UL 6.3A	1EC 5A	1EC 5A	1EC 5A
1202	-	YES	-	-
9205	YES	-	YES	YES
9201	YES	-	-	-
9202	YES	-	-	-
9208	-	-	-	YES

DC at the pin of AN7164(18W) @230Vac

pin	1	2	3	4	5	6	7	8	9	10	11	12
(volts)	24	1.20	-	1.20	-	6.3	13.2	22.5	-	13.2	22.5	25.4

DC at the pin of AN7164(12W) @230Vac

pin	1	2	3	4	5	6	7	8	9	10	11	12
(volts)	22.1	1.20	0	1.20	0	5	12.0	20.6	⊥	12.0	20.6	23.4

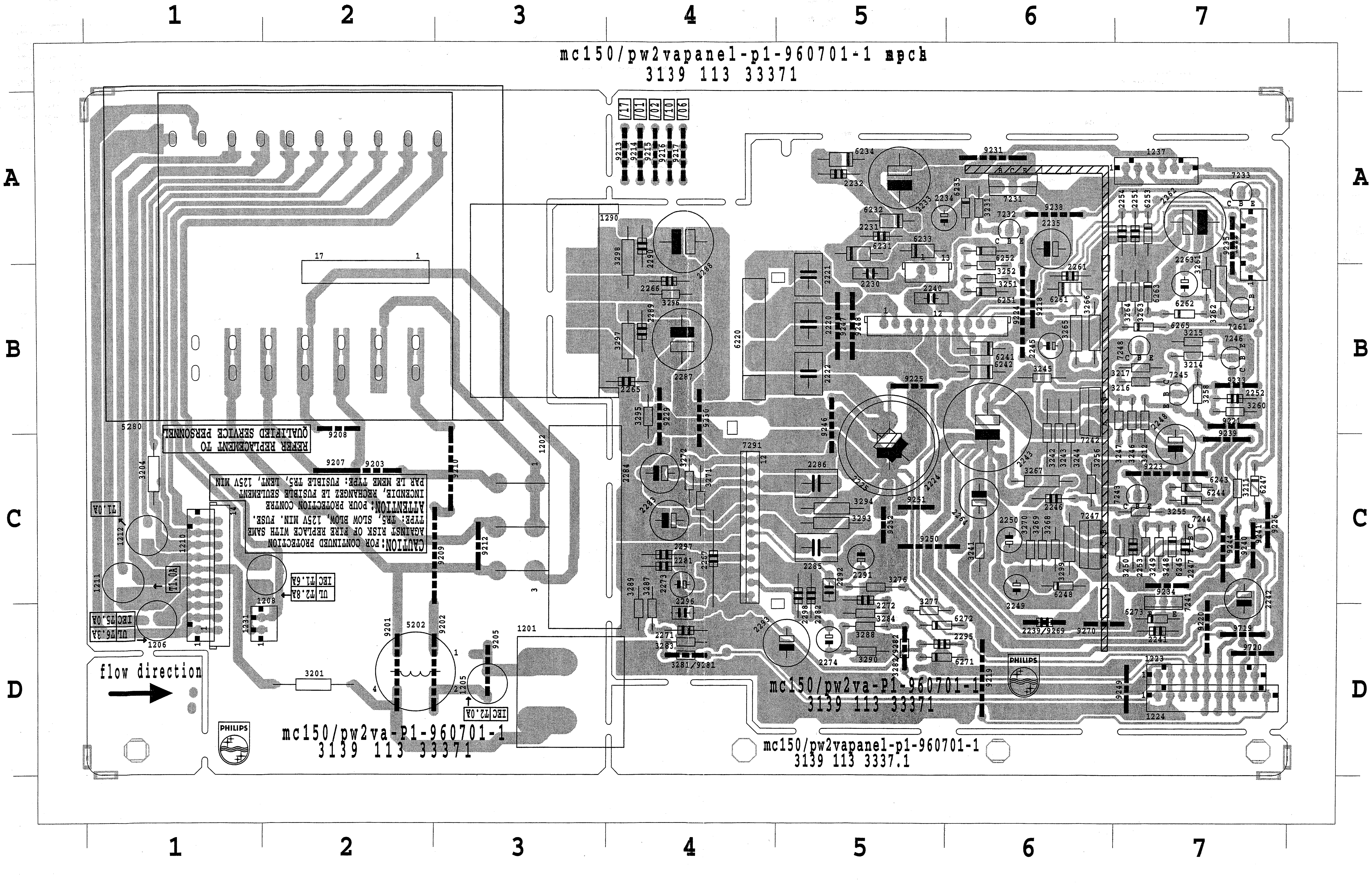
STD_BY / AMP_ON	H	Z	L
H	SET ON VCD OFF	SET ON VCD ON	
L			SET GOES STD_BY

# VALUES FOR 12W	
3281 / 3282	2K2
3283 / 3284	1K5
2271 / 2272	8N2
2248	220u
9244	YES

3139 118 89220 wk736

POWER 2VA COMPONENT LAYOUT

1205	D 3
1206	D 1
1208	C 2
1210	C 1
1211	C 1
1212	C 1
1222	A 7
2220	B 5
2221	B 5
2222	B 5
2224	C 5
2225	C 5
2230	B 5
2231	A 5
2240	B 5
2241	D 7
2242	C 7
2243	B 6
2245	B 6
2246	C 6
2247	C 7
2253	C 7
2254	A 7
2261	B 6
2262	A 7
2263	B 7
2264	C 6
2265	B 4
2274	D 5
2281	C 4
2282	C 5
2283	C 4
2284	C 4
2285	C 5
2286	C 5
2292	C 5
2293	D 5
2295	D 5
2296	D 4
2297	C 4
2298	C 5
3201	D 2
3216	B 7
3217	B 7
3231	A 6
3241	C 6
3242	B 6
3243	B 6
3244	B 6
3250	C 7
3251	B 6
3252	B 6
3255	C 7
3256	C 6
3258	B 7
3260	B 7
3266	B 6
3267	C 6
3268	C 6
3269	C 6
3270	C 6
3271	C 4
3272	C 4
3284	D 5
3287	D 4
3288	D 5
3289	D 4
3290	D 5
3293	C 5
3294	C 5
5202	D 2
5280	B 2
6220	B 4
6231	A 5
6232	A 5
6233	A 5
6234	A 5
6245	C 7
6247	C 7
6248	C 6
6251	B 6
6252	A 6
6253	A 7
6261	B 6
6273	D 7
7231	A 6
7232	A 6
7233	A 7
7241	C 7
7242	B 6
7243	C 7
7261	B 7
7291	C 4
9201	D 2
9202	D 2
9203	C 2
9205	D 3
9207	C 2
9214	A 4
9215	A 4
9216	A 4
9217	A 4
9218	B 6
9219	D 6
9220	D 7
9229	B 4
9230	B 4
9231	A 6
9233	B 7
9234	C 7
9235	A 7
9238	A 6
9247	B 5
9248	B 5
9249	D 7
9250	C 5
9251	C 5
9252	C 5
9269	D 6


1
2
3
4
5
6
7
A
B
C
D
mc150/pw2vapanel-p1-960701-1 mpch
3139 113 33371
REFER REPLACEMENT TO QUALIFIED SERVICE PERSONNEL
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE: TR5, SLOW BLOW, 125V MIN. FUSE.
ATTENTION: POUR PROTECTION CONTRE INCENDIE, RECHANGEZ LE FUSIBLE SEULEMENT PAR LE MEME TYPE: FUSIBLE TR5, LENT, 125V MIN
flow direction
PHILIPS
mc150/pw2va-P1-960701-1
3139 113 33371
mc150/pw2vapanel-p1-960701-1
3139 113 3337.1
UL T6.3A
IEC T5.0A
UL T2.8A
IEC T1.6A
T1.0A
T1.0A
IEC T2.0A
1201
1202
1205
1206
1208
1210
1211
1212
1223
1224
1231
1237
1290
5202
5280
6220
7291
3201
3204
9201
9202
9205
9207
9208
9209
9210
9212
9203